# CONSTRUCTION METHODS AND EQUIPMENT

September, 1949



Get the Most Out of Your Earthmoving Dollars Hustling Job Repaves New York Streets

A M c G R A W - H I L L P U B L I C A T I O N



#### GEARED to the Concrete

The deep, reversed, double-helical ribs of Inland HI-BOND reinforcing bars grip the concrete with an interlocking action that provides unequaled bonding strength.

Engineering tests have proved that straight embedments of HI-BOND have a greater bonding effectiveness than bent-bar anchorages of ordinary deformed bars. And, with ordinary bars, the low bonding strength of the bar has always been the weak link in the structure—the bar would slip before the steel or concrete could be fully loaded. With its high bonding

strength, HI-BOND bars make it possible not only to use more of the potential strength of the steel but also to take advantage of the higher compressive strength of present-day concretes. As a result, HI-BOND is leading the way to radical revisions in present building codes.

The present demand for HI-BOND greatly exceeds our ability to supply it. However, to make larger tonnages available to you, we have licensed other steel companies to make this superior bar. Write for booklet.

INLAND STEEL CO., 38 S. Dearborn St., Chicago, Ill. Sales Offices: Chicago, Davenport, Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul.

INLAND HI-BOND

Reg. U. S. Pat. Off.

DUCADO

The Reinforcing Bar with the "BUILT-IN" ANCHORAGE!

OTHER PRODUCTS: BARS . STRUCTURALS . PLATES . SHEETS . STRIP . TIN PLATE . FLOOR PLATE . PILING . RAILS . TRACK ACCESSORIES



#### "All aboard" for 14 million crashing tons

A typical example of B.F.Goodrich product improvement

Those are chunks of coal, some weighing a ton apiece, on their way to a boat ride. It's a rubber conveyor belt they are riding, to ship side. Coal cars crash these heavy lumps onto the belt from a height of 15 feet. It's a wonder that belts lasted 5 years and carried 6 million tons of coal; that was a testimonial to rubber.

But still B. F. Goodrich wasn't satisfied. Engineers here had been working on a new principle of conveyor belts called cord belts, for just such crashing impact. In this exclusive design individual cords run lengthwise, each

floating in rubber—the whole belt can "give" and absorb impact blows whereas old stiff woven belts had to stand and take the blow and so of course tore, broke, wore out.

The belt in the picture is the first cord conveyor belt ever installed. Instead of the 5 year previous record it has already lasted 11—and look what it's still carrying today! Instead of 6 million tons it has carried 14 million, and engineers estimate it's good for 6 million more.

And it is exposed to sun and ice, Ohio River floods, wet sharp coalevery possible condition that would ruin other, ordinary rubber belts. Its B. F. Goodrich patented construction stands them all.

Here is a perfect example of BFG research which is constantly lengthening the life of rubber products, and so reducing their cost to industry. It is the research you benefit by when you call in your B.F. Goodrich distributor. The B.F. Goodrich Company, Industrial and General Products Division, Akron, Ohio.

B.F. Goodrich

# FLEETSOF A.C's

PROJECT: Garrison Dam on Missouri River, N.D.—Stage II of the World's Largest Rolled-Earth Fill Dam.

CONTRACTORS: Peter Kiewit Sons' Co. and Morrison-Knudsen Co.

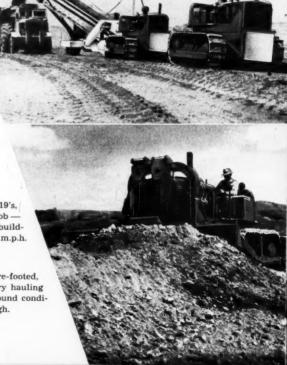
# 42 HD-19 HYDRAULIC TORQUE CONVERTER TRACTORS

PULL and PUSH BIG LOADERS (right)—Heavy, powerful HD-19's keep big loaders operating at capacity in the tough going. Synchronize speeds—start and stop with throttle...no constant clutching. Spillage is negligible, there's less wear and tear on loader and tractors.

**BOOST HAULING UNITS** — HD-19's with pusher plates, "patrol" the job . . . keep the heavily loaded wagons moving through the mucky material. Catch them quickly, make a smooth contact and stay with 'em — match speeds exactly.

HANDLE ALL TYPES OF BULLDOZING (right)—Fleets of '19's, with matched 'dozers, are everywhere, speeding up every job—clearing, leveling fills, cleaning up around shovels, sloping, building haul roads, pulling equipment. High reverse—to 5.5 m.p.h. No worrying about overloads—can't kill engine.

**PULL SCRAPERS, ROLLERS, OTHER EQUIPMENT**—Big, sure-footed, better-balanced HD-19's really bear down and lug on every hauling job. Automatically move equipment as fast as load and ground conditions permit—up to 3.0 m.p.h. in low, to 7.0 m.p.h. in high.



### help rush big job

### 12 MODEL AD MOTOR GRADERS

KEEP HAUL ROADS SMOOTH — A continuous procession of big hauling units tear, whip and grind the earth as they travel. Keeping the way smooth, to keep the material moving fast, is the job assigned to the fleet of A-C Motor Graders . . . plus cutting and sloping banks. Strong, powerful, fast, diesel-powered Allis-Chalmers Motor Graders can "take on" the toughest jobs, handle them smoothly, quickly, at lowest possible cost. Only A-C Motor Graders have the "Roll-Away" Moldboard — less power required to move more material at faster speeds.

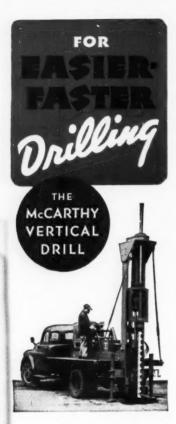
#### **HD-5 WITH TRACTO-SHOVEL**

VERSATILE — There's no limit to the applications of this outfit with its many interchangeable attachments. Here it picks up oversize rock from the fill with specially designed forks. Small stones go through the forks, the big ones remain — and are loaded into trucks. Think of the savings on man-hours! Other attachments include various sizes and types of buckets, bulldozer blades and a "V" snowplow.

ALLIS-CHALMERS

...Originator of the Torque Converter Tractor

PACTOR DIVISIONES SAMILWALLER IN C.A.



● For record-breaking performance... for ease of operation, you can't top a McCarthy Vertical Drill. Recently, on one difficult job, workers using Mc-Carthy equipment drilled an 8-inch hole 100 feet deep in only 40 minutes! The derrick is raised and lowered by hydraulic power . . . finger tip controlled . . . and a 60 H. P. gasoline motor is part of the standard equipment.

The McCarthy Vertical Drill, manufactured by The Salem Tool Co., is adaptable to high wall and key way drilling and diamond drill boring . . . drills 90% of all limestone and sand rock formations, and readily burrows through shale. Send today for complete information, and for a free copy of The Salem Tool Company booklet.

MINING EQUIPMENT SINCE 1901



THE SALEM TOOL COMPANY

SALEN, OHIG. H. S. A.

Volume 31 Number 9

### CONSTRUCTION METHODS AND EQUIPMENT

ESTABLISHED 1919

#### SEPTEMBER 1949

#### CONTENTS

Long booms and tower pour building concrete	46
Hustling job repaves New York streets	50
Get the most out of your earthmoving dollars	52
Nest of U-tubes for cable creek crossing	56
Two Travelers close Akron bridge	58
Big tanks welded together for river tow	62
Equipment maintenance: Hard facing on machine parts	64
Chemical treatment cures sick tunnel	66
Bluestone River bridge-burned and blasted	74
American equipment takes Mexican dam in stride	78
Pumping system soaks dam fill	86
READERS' PICTURE PAGE	82

#### DEPARTMENTS

Construction Details	40	<b>Legal Decisions Concerning</b>	
Job Oddities	42	Construction	90
		News Reel	94
Editorial	45	Personalities	97
Cuts and Fills	49	New Equipment	100

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# Mountain Movers



ft. of manufacturing space, at Peoria, Ill., makes a total under-roof area of 118 acres devoted to the production of the world-famous line of earth-moving equipment which does such a large share of the herculean spadework of lifting and lowering the face of the nation.

In great factories like Caterpillar's, quality construction is recognized as being a prime requisite of quality production-so it is significant that this immense new plant was built throughout with Lone Star Cement. The structure is staunchly supported on 1306 concretefilled piles, with designed bearing loads ranging from 45 to 60 tons. And a pleasant aspect of the plant itself is the attractive appearance of well-made concrete-in floors, machinery bases, driveways and for scores of other purposes.

Remember, there's a Lone Star Cement for every construction need: LONE STAR PORTLAND CEMENT for strong, durable concrete in all types of work ... "INCOR" 24-HOUR CEMENT for top-speed construction with 50% less forms and important winter economies . . . LONE STAR AIR-ENTRAINING CEMENT for highway work and other uses...LONE STAR MASONRY CEMENT for quality masonry. The name LONE STAR on cement assures the utmost in quality and uniformity. \*Reg. U. S. Pat. Off.

CATERPILLAR TRACTOR CO.'s BUILDING LL. Peorig. Ill. Engineers & Architects: GIFFELS & VALLET INC. and L. ROSSETTI, Detroit Contractor: BRYANT & DETWILER COMPANY, Detroit

Lone Star Cement supplied by FABER-MUSSER COMPANY, Peoria, Ill

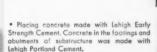




LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 15 MODERN MILLS, 27,000,000 BARRELS ANNUAL CAPACITY

## Trains go through while work goes on

 Concrete pour begins for the first track deck on the upper level of the Long Island Rail Road bridge over Van Wyck Expressway in Jamaica, N. Y.



Progress speeded with LEHIGH Early Strength Cement



- Four days after placing concrete, the first track was in use. In less than a week, the deck supports this huge locomotive crane.
- CONTRACTORS: Arthur A. Johnson Corporation and Mason & Hanger Company, Inc.
   READY MIXED CONCRETE: Transit Mix





- THE PROBLEM To make 1635 train movements daily while extending the Long Island Rail Road 13-track double-deck bridge over the wider highway.
- THE SOLUTION Exhaustive preliminary study by the Long Island Rail Road and the New York State Department of Public Works in preparing plans and specifications—and the contractors' skill in executing these plans with the right construction methods and the right materials.

Just as Lehigh Early Strength Cement is proving to be the right material for the new concrete track decks on this structure, so it may be the right material for your next job . . . to insure greater convenience, more speed or lower costs. Whatever your cement requirements, there are Lehigh Cements to fit them. Our Service Department will be glad to help you with any specific problem.

LEHIGH PORTLAND CEMENT COMPANY ALLENTOWN, PA. CHICAGO, ILL. SPOKANE, WASH.

LEHIGH MORTAR CEMENT . LEHIGH PORTLAND CEMENT . LEHIGH AIR-ENTRAINING CEMENT . LEHIGH EARLY STRENGTH CEMENT





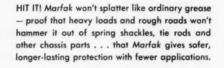
E ngineered and built for heavy off-the-highway hauling, "Eucs" are first choice for open pit mining and quarry operations, and for construction and industrial work. Proved on hundreds of the toughest jobs, Euclid low cost performance is backed by a world wide distributor organization with competent personnel and stocks of genuine Euclid parts.

Euclid owners know they can depend on prompt and efficient service whenever needed to keep down-time and maintenance costs at a minimum. Your Euclid distributor will be glad to show you how dependable performance and fast on-the-job service can help to lower your hauling costs and keep your work moving on schedule.

First in field performance—first in service...these are Euclid plus values that add up to customer satisfaction.

The EUCLID ROAD MACHINERY Co., cleveland 17, Ohio

# STOP LOOK



# LESSEN

maintenance costs

Texaco Marfak assures longer life for all chassis parts



MORE THAN 300 MILLION POUNDS OF MARFAK HAVE BEEN SOLD



TEXACO



### Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

#### CUT YOUR CHAIN COSTS... REDUCE MAINTENANCE



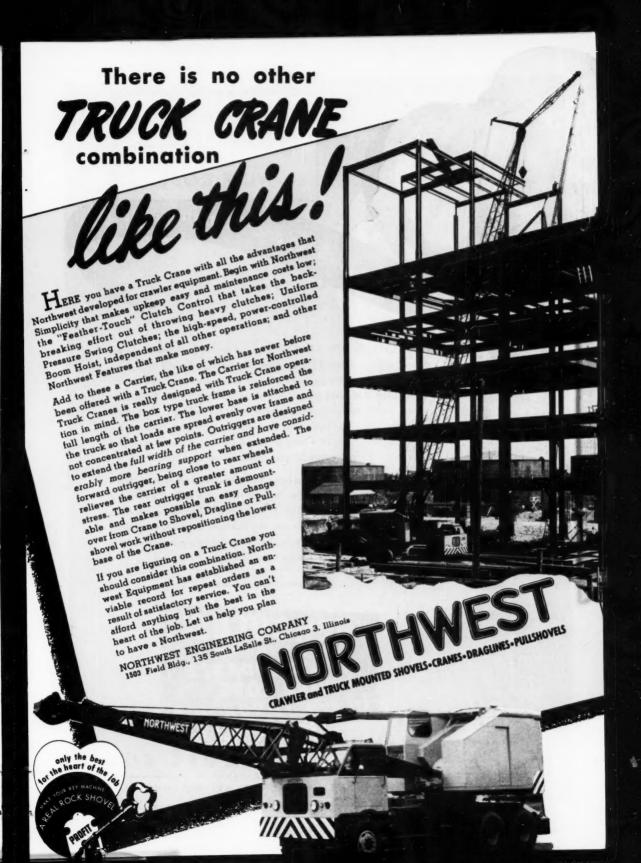
Built to withstand the severe abuse encountered in construction work, Whitney Chain Drives will keep your equipment working round-theclock schedules and reduce maintenance headaches with their long life.

prevalent in this type of work.

It will pay you to standardize on Whitney Chain Drives and Cut Tooth Sprockets . . . the all steel drives . . . for original equipment or replacement. They save dollars by cutting maintenance costs and keeping all types of construction equipment on the move. Write for information and specifications.

#### WHITNEY CHAIN & MFG. CO.

Division of Whitney-Hanson Industries Inc. 222 HAMILTON STREET, HARTFORD 2, CONN.





-Preformed-VIRE ROPE



19 Filler Wire





Style G-Flattened Strand Fiber Core

"HERCULES" (Red-Strand) Wire Rope has proved its worth by the accurate yardstick of actual performance. For over 60 years the Red-Strand has been a dependable guide to safe and economical wire rope service. Now in the Preformed type, a plus value has been added. As internal stresses are largely eliminated, the rope is less apt to kink ... it is easier to handle . . . it spools better. But these are not the only advantages. Bee cause internal stresses have been reduced there is less internal wear and more resistance to bending fatigue, which means longer life.

Another and an ever important factor in determining wire rope life is the use of the right construction for the work the rope is to do. To meet this situation, Preformed "HERCULES' (Red-Strand) Wire Rope is made in a wide range of both Round Strand and Flattened Strand constructions. There is a correct type for any heavy duty job. Our Engineering Department will be glad to help you make the right selection.

We invite your inquiries.



6 x 37 Filler Wire Fiber Core





NEW YORK 6 LOS ANGELES 21 CHICAGO 7

HOUSTON 3 PORTLAND 9 SEATTLE 4

# Youfe Right 3 Lytth FORD FOWER!



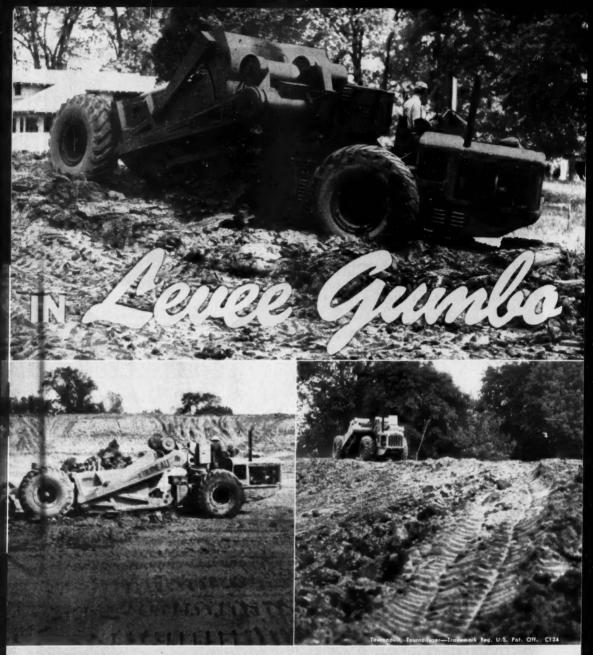
Ford 120 Four Cylinder Industrial Engine Power Unit (120 cu. in. displacement)



For power, pick Ford! There's a model jour visits for your application in the great Ford Industrial Engine "Power-Family" -- 2 "four" with 120 ce. in displacement... two "single" -- 226 cu. to, and 239 cr. in and 337 cr. in Each one complaint haw, the right power for you —for farm limble ments, consured on smalley units, meeting has dling, pumping, many other important units.

FORD MOTOR COMPANY

YOUR 193 IS WELL-POWERED WHEN 17'S PORP-POWERE



Loading tough, rubbery gumbo, each C Tournapull averaged 9 pay yards. Loading time: 55 seconds . . . distance: 90 feet. On the fill, positive ejection of electric-control Scraper forced all the stubbern load out . . . wiped bowl clean every trip. In dry weather, this gumbo loads in slobs, so hard they seldom break when dumped.

In wet-going, Tournapulls kept hauling and spreading big loads on the levee fill. Part of their remarkable traction is due to powerproportioning differential which automatically delivers 4 times the tractive power to drive wheel on firmest footing. Note how tire tread mark shows flotation advantage of big, 21,00 x 25, low-pressure tires.



#### Mail Today to: R. G. LeTOURNEAU, Inc., Peoria, Illinois

Please send us more performance reports on 150 h.p. C Tournapulls . . . . Have our LeTourneau distributor call.

NAME \_\_\_\_\_\_TITLE\_

STREET CITY, STATE



# C TOURNAPULLS move 144 yds. an hour on 1600' haul for Howard and Finnegan

On 155,000-yard levee for U. S. Engineers, near Grand Tower, Illinois, material being handled is the worst kind of black gumbo . . . so sticky and stubborn when wet that it hangs up in dragline buckets . . . and so soft, that ordinary crawler-scraper rigs constantly mire down on the fill.

#### Use "C's" to drain borrow pit

Under these conditions, Howard and Finnegan Construction Co., of Washington, Illinois, moved in 2 electric-control C Tournapulls. "They have out-produced our tractors and scrapers on short turn-around work, as well as on long hauls," reports Ed Howard. "We have worked our 'C's' when our tractors and scrapers wouldn't go through. With the 'C's' we would tilt the borrow pit, let water drain off, then take out dirt which had been under water . . . moved 18,000 yards under these conditions, averaged 60 yards an hour for each rig."

Production figures taken from contractor's records show that the 2 C Tournapulls, on 1600' 1-

way haul, actually placed 144 pay yards of gumbo an hour on the wet levee fill.

#### Helps crawler off wet fill

During wet weather, muck was hub-deep. When a crawler tractor mired down on the soft fill, one of the C Tournapulls quickly took half a load in its Scraper bowl for extra tractive weight . . . waded onto the fill and pulled the crawler out.

Howard and Finnegan's experience is no exception. These new C Tournapulls have earned a wide reputation for being "good mudders". Their husky, 180 h.p. pull is delivered to high-traction drive wheels through a revolutionary, power-proportioning differential. This . . . plus flotation advantages of giant, 21.00 x 25, low-pressure tires . . . and positive, electric power steer, assure you all-weather performance . . . more yards per hour under all job conditions. It will pay you to get all the facts. Write . . . or call your LeTourneau Distributor about the new C Tournapulls TODAY.

ETOURNEAU



MORE YARDS PER HOUR WITH RUBBER-TIRED POWER



#### CONFIDENCE

There is no better evidence of the ability of the Merritt-Chapman & Scott Corporation to construct a wide variety of projects with skill, speed and economy, than this partial list of outstanding clients it has served:

Alabama Pulp & Paper Company Allied Chemical & Dye Corporation American Cyanamid Company Atlantic Refining Company Baltimore & Ohio Railroad Camp Manufacturing Company Champion Paper & Fibre Company City of Bayonne City of New York City of Los Angeles Connecticut Power Company Delaware River Joint Commission of Pennsylvania & New Jersey Dexter Sulphite Pulp & Paper Company Eastman Kodak Company General Chemical Company Hudson Pulp & Paper Corporation Jones & Laughlin Steel Corporation Mystic River Bridge Authority National Lead Company National Tube Company New York Central System Pennsylvania Railroad Standard Oil Company of New Jersey Todd Atlantic Shipyards **United States Navy** United States War Department

#### Industrial and Building Construction Division

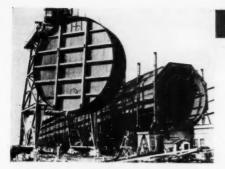
Contemplating new plant construction or additions? Then you need a construction service that will bring your new plant to production as quickly as possible and at low cost to you! Merritt-Chapman & Scott Corporation is well equipped in plant and experience to provide rapid, economical construction service.

The Organization is ready to carry out the installation of all mechanical, electrical and piping facilities, the installation of all utilities and to purchase, expedite and install your equipment.

Whether you are considering a new paper mill, chemical plant, hospital, factory, engine repair house, boiler plant, steel mill, warehouse, power plant, factory, housing project, or an improvement to your present property, get in touch with Merritt-Chapman & Scott Corporation.

#### REREITT - CHAPMAR & SCOTT CORP

New London, Conn. . Cleveland, Ohio . Key West, Florida



Section No. 1 of Pasadena, Texas, motor vehicle tunnel nearing completion immediately prior to launching. A part of the bulkhead assembly is shown being hoisted into position.

#### Marine and Heavy Construction

Peculiarly fitted, by its 75 years of familiarity with the industry, to solve the many unusual problems posed by marine construction, Merritt-Chapman & Scott Corporation today stands foremost among the nation's bridgebuilders. Further, the Corporation has successfully completed tunnels, piers, breakwaters, marine terminals and facilities, dams, bulkheads, river and harbor improvements, marine outfalls, locks, subaqueous pipelines, and marine foundations numbering in the thousands for the industries, cities and states of the nation.

As in all its operations, Merritt-Chapman & Scott's own organization provides the experienced know-how of generations of achievement; its unusual plant facilities comprise 148 pieces of floating equipment, including complete concrete mixing and placing plants, derrick cranes of great lifting capacity, pile drivers, tugs, scows, and numerous pieces of auxiliary equipment.

#### Experience . . .

A multi million dollar project involving the construction of all buildings from foundations to roof, and the purchasing, expediting and installation of all equipment and utilities is shown in this photograph of the Hudson Pulp & Paper Company plant at Palatka, Florida. The construction of many such "turn key" projects demonstrates the experience of the Merritt-Chapman & Scott Corporation in providing American industry with economical construction.



#### Plant . .

The photograph to the left is indicative of the size and scope of the plant and equipment utilized by Merritt-Chapman & Scott Corporation in its widespread construction activities. The illustration portrays a complete floating concrete mixing and placing plant and five derrick cranes at work on one phase of the construction of the Raymond E. Baldwin Bridge over the Connecticut River between Old Lyme and Old Saybrook, Connecticut.

THIS wide experience in industrial and marine construction, supplemented by equipment facilities far beyond the usual and backed by financial capacity is offered to prospective clients. Offices are located in Boston, Mass., Cleveland, Ohio, New London, Conn., Pasadena, Texas, and New York, N. Y.





## gives you the winning combination Mobility plus Performance plus Stamina



Here's a new LIMA "Paymaster" that pays extra dividends because it can travel between jobs on its own power—at automotive speeds. Type 34-T is a convertible shovel, crane, dragline or pull shovel, mounted on a standard 10-wheel truck crane carrier with independent engine for travel. It has a crane capacity of 20 tons (35 ft. boom, 10 ft. radius) and shovel capacity of 34 or 1 yd., with outriggers extended. It can travel up to 31 M.P.H. Rotating equipment duplicates that of the famous crawler mounted "Paymaster", with alterations adapting it to truck mounting—thus assuring the same high peak, continuous performance which has made the "Paymaster" the leader in its field.

#### "Wheel-Mounted" units also available

You can now also get the LIMA "Paymaster" and the LIMA Type 604 (35 ton crane) in a single engine wheel mounted unit. Crawler Mounted LIMA machines are available in Shovel capacities from 3/4 to 6 yards, Cranes to 110 tons and Draglines variable.

It will pay you to consult your nearest LIMA Sales Office or Representative before you buy your next shovel, crane or dragline. Offices in principal U.S. cities.

#### Lima Shovel and Crane Division

LIMA, OHIO

OTHER DIVISIONS: Lima Locomotive Works Division; Niles Tool Works Co.; Hooven, Owens, Rentschler Co.



#### THE CHAIN TAKES THE STRAIN



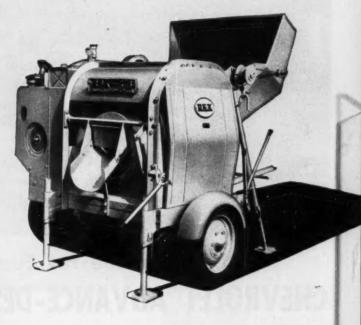
The exclusive Rex Chain Drum Drive eliminates stresses and strains. The chain protects the transmission ... gears ... shafting ... power plant. It eliminates binding between drum and transmission during the mixing action. And since the chain transmits power in the "up" direction, the load on the drum rollers is materially reduced.

#### the Mixers that give you MOST!





CHAIN BELT



#### Lower Maintenance and Operating Cost

The Rex Chain Drum Drive permits weight to be properly distributed throughout the mixer for extra long life. It eliminates the need for bulky, excessively heavy transmission cases, shafting, bearings, etc. The weight saved here permits us to build added wearing life into parts where it is needed most... blades, drum rollers, drum shell and drum supports without sacrificing extreme portability. A Rex Mixer just has to deliver the lowest operating and maintenance costs of any mixer.

#### The REX "Easy Arc" Controls

Rex Mixers are designed to turn out *more* batches per day with far less manual effort. Operator can handle all controls from one spot. All have ample leverage ... swing through short, easy arcs for safe, convenient, easy operation. For example, the discharge chute ... it's outside the drum while mixing, and the operator just gives the lever an easy push that swings the chute into the drum. He doesn't have to lift a chute-full of concrete as is the case on the ordinary chute that's inside the drum during mixing.

There are a lot of other important "Plus" advantages of Rex Mixers. For all the facts, see your Rex Distributor, or write for your copy of Bulletin No. 47-10. Chain Belt Company, 1664 West Bruce Street, Milwaukee 4, Wis.

REX

CONSTRUCTION

MACHINERY



## Bigger Value for Every Job CHEVROLET ADVANCE-DESIGN TRUCKS

CHEVROLET It takes a truck operator to really evaluate a truck. Yes, the man behind the wheel is the one who can best appreciate the worth of powerful yet economical performance . . . extraordinary load capacity . . . lasting quality, ruggedness and handling ease. He's the one who recognizes the advantages of new, improved features-of greater comfort and convenience for the driver. And these men in the drivers' seats-these experienced truck operators across America-know that Chevrolet trucks deliver more of the value factors they want. They know that Chevrolet trucks cost less to operate, less to maintain, and have the lowest list prices in the entire truck field. That's why they use more Chevrolet trucks than any other make! Your Chevrolet dealer will give you the facts in detail!

CHEVROLET MOTOR DIVISION, General Motors Corporation, DETROIT 2, MICHIGAN

#### TOP-VOLUME PRODUCTION BRINGS YOU TOP-VALUE FEATURES!

Chevrolet's new 4-SPEED SYNCHRO-MESH TRANSMISSION offers quicker, quieter and easier operation. Double clutching is eliminated because the gears are always in mesh. Faster shifting maintains speed and momentum on grades. Available in series 3800 and heavier duty models.

Chevrolet's power-packed VALVE-IN-HEAD ENGINES provide improved durability and efficiency as well as the world's greatest economy for their size!

Chevrolet trucks have the famous CAB THAT "BREATHES"\*! Outside air is drawn in and used air forced out! Heated in cold weather.

Chevrolet Advance-Design brings you the FLEXI-MOUNTED CAB, cushioned on rubber against road shocks, torsion and vibration.

Chevrolet's exclusive SPLINED REAR AXLE HUB CONNECTION adds greater strength and durability to heavy-duty models.

Uniweld, All-Steel Cab Construction • Large, Durable, Fully-Adjustable Seat • All-Round Visibility with Rear-Corner Windows\* • Heavier Springs • Super-Strength Frames • Full-Floating Hypoid Rear Axles in the 3600 Series and Heavier Duty Models • Double-Articulated Brake Shoe Linkage • Hydrovac Power Brakes in Series 5000 and 6000 Models • Multiple Color Options.

"Healing and ventilating system and rear-corner windows with de luxe equipment optional at extra cost.

#### CHOOSE CHEVROLET TRUCKS FOR TRANSPORTATION UNLIMITED!



# WHY "CATERPILLAR"

## do more work at lower

Take a good look at your present scraper equipment. Sure, the machines are holding together. They're moving earth. But can you afford to keep them on the job, when competitors are using "Caterpillar" Scrapers—moving more yardage, faster, at lower costs?

On these pages are a few of the reasons why the "Caterpillar" Scraper is out ahead in profitable operation. Let your "Caterpillar" dealer show you other superior features. Then talk to him about trading in your old "pans" on the new machines he can supply.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS



"Caterpillar" design, with positive ejection and high apron lift,

#### CATERPILLAR DIESEL



# SCRAPERS costs per yard

The "Caterpillar" Scraper blade is designed for slicing action in the cut. It digs faster, with less drawbar pull. And the apron is so designed that it won't clog the loading chute. It allows the material to funnel up from the blade without excessive packing.

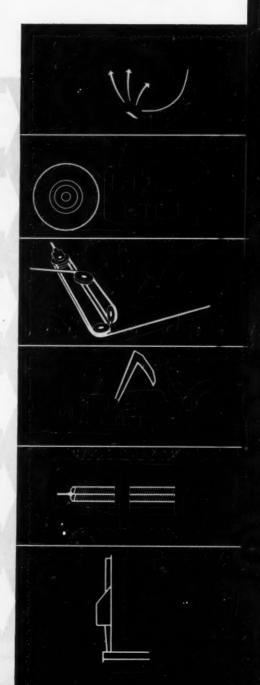
Bigger tires on the "Caterpillar" Scraper give low rolling resistance on the haul. That means higher travel speeds and more trips per day. Big tires also allow very low tire pressures for greater flotation in soft earth. You can operate in working conditions that would bog down the average scraper.

On the fill, the "Caterpillar" Cable Control system takes over to eject the material in smooth layers. Concealed sheaves and cable keep out abrasive material and result in longer cable life. Yet all cables can be replaced by a man standing on the ground. Sheaves are accurately aligned, heat-treated and machined, so that cable doesn't chafe or wear.

The apron lifts high, with no interference overhead. It is pivoted on the outside and well back on the bowl for ample load clearance when spreading material.

Four long flexible springs are hooked directly to the ejector plate to give a simple but dependable return action after a load is spread. Springs and ejector sheave systems are both well shielded from abrasive earth.

"Caterpillar" Scrapers are built to true "Caterpillar" quality standards. Box section double bottom and box section side walls, made from special high-tensile steels, are among the reasons why these units have exceptionally long work life.



# Protect your profits with

HAVE you ever noticed how many old-time Koehrings are still operating profitably, day after day in your territory? There's an important "plus" value for you in this long-life characteristic of the Koehring excavator line. You get more than an excavator when you buy a Koehring ... you get insurance that your machine can keep working and earning an heavy, 3-shift schedules during peak periods, war crises, and other emergencies that can occur during the life-time of your excavator.

Managed to be der in the Vryand shoot, Rocketing 2D5 has regued, doub-purpose beam to both showed and pell-board. This saves 20 to 25 % over white requiring against beams, 205 also converts to draging, describing

11/2 You

Moshring 605's last, smeath swing, ceel-running clutches, independent beam helet, make each shift more productive. Big 37" power clutch requires only 1/10th normal lever pull, rotains "feel", 605 handles all standard exercisis at a tracking 30 ly-lan lift trans.

For heavy-duty hauling...

Koshring 6-yd. Dumptors\* keep excavator surport high...houling costs low. They speed shavel swings... maneuver in close... provide hig 8' x 8' target for loading over and or side. No-turn shuttle hout gets them to dump and back fast! 1-second gravity demp elim-

eintenance.

# KOEHRING heavy-duty...

THIS heavy-duty "plus" in Kachring exemptors assured less down-time, law or maintenance easts ... more wark-time. They have a good reputation among owners and operators for steady output ... steady income. This also has an important bearing on re-sale price any time during life-time of the excevator. You will never have an "orphan" an your harids, with Kochring behind your machine. So ... before you invest in excavators, investigate Kochring "profit insurance". Get all the facts from your Kochring distributor.

3/4 1000

for onthe larged digiting them, and the period of the control of t

24 yord

Heavy-duty Koskring. 1005 introduces his yearing and put and operating once not previously available in the 2 ½-yeard closs. It's extra regged in every default. Less his self-adjusting 4' power clutch, positive traction brake-steering, 2-section independent riskin crew 4. Converts to drogline, or 50 ½-ten crane.

KOEHRING

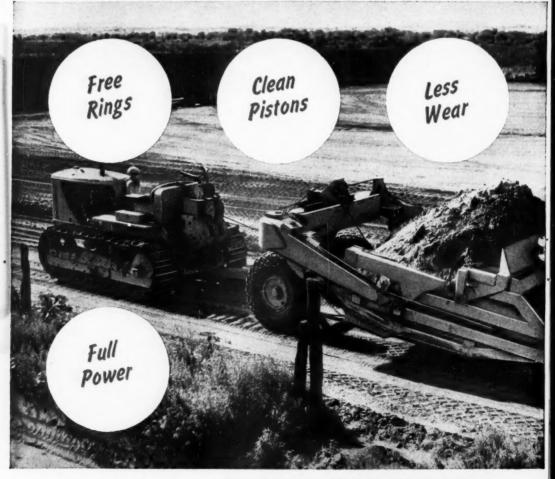
COMPANY

Milwaukee 10, Wis

SUBSIDIARIES: KWIK-MIX . PARSONS . JOHNSON



# NOW3 in the SINCLAIR to meet every





YOUR NEAREST SUPPLIER OF SINCLAIR PRODUCTS WILL GLADLY ARRANGE

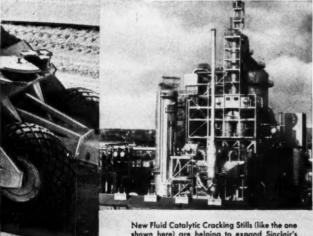
# TENOL FAMILY operating requirement

Two new Tenols now make it possible to meet every operating requirement with one of these superior oils. New—SUPER TENOL and TENOL EXTRA are designed to take care of new conditions and "heavier" duty service to which engines are being subjected.

SUPER TENOL meets the engine test requirements of U.S. Army Spec. 2-104 B, Supplemental List 1. It accepts the challenge of continuous, extra-hard service and also thwarts cold engine sludge caused in diesels and gasoline engines by long idle and stop-and-go operation. It helps solve the problems caused by the use of improper or high sulphur fuels.

TENOL EXTRA qualifies under U.S. Army Spec. 2-104 B, Supplemental List 2—and the requirements of Caterpillar Series 2 oil for supercharged diesels, abnormally heavy duty operation and high sulphur fuel.

Use TENOLS as maintenance tools to extend overhaul intervals, engine life.



New Fluid Catalytic Cracking Stills (like the one shown here) are helping to expand Sinclair's refinery output. Sinclair's great refineries are now turning out products at the rate of 150,000,000 gallons of lubricating oil yearly.



About 40% of all the Aircraft Engine Oil used by domestic Airlines in the U.S.A. is supplied by SINCLAIR. The same careful research that developed this high quality oil for the Airlines is put into TENOL and other Sinclair Oils.

#### **HEAVY DUTY LUBRICANTS**

FOR LUBRICATION COUNSEL, OR YOU MAY WRITE TO SINCLAIR REFINING COMPANY, 630 FIFTH AVE., NEW YORK 20, N. Y.

#### American Welded Wire Fabric



As the wheel load approaches an open crack in plain pavement, shown above, one slab end carries the entire load. As the wheel load approaches the closed crack in pavement reinforced with American Welded Wire Fabric, shown below, both slab ends, instead or one, carry the load, preventing progressive damage to the slab and to the subgrade.

Rigin Revenued (a) Open Crack

Reinforced Revenued (b) Clasel Crack

You can prevent undue damage from cracks, if they occur in concrete pavements, by reinforcing paving slabs with American Welded Wire Fabric.

Its many small members of cold drawn, high yield-point steel, closely and evenly spaced, fortify all parts of the slab, tend to prevent excessive cracking. They also hold crack edges together, distribute wheel loads to both sides of the crack, prevent progressive damage to the slab and to the subgrade. (See sketches)

No other type of construction has matched the records established by concrete slabs reinforced with American Welded Wire Fabric. Their structural superiority has been proved in the many thousands of miles of concrete highways in which they have given satisfactory service, year after year.

There is a standard style of U·S·S American Welded Wire Fabric to meet every paving requirement. Write to the American Steel & Wire Company, Rockefeller Building, Cleveland 13, Ohio, for literature on American Welded Wire Fabric.

AMERICAN STEEL & WIRE COMPANY GENERAL OFFICES: CLEVELAND, OHIO COLUMBIA STEEL COMPANY, SAN FRANCISCO PACIFIC COAST DISTRIBUTORS TENNESSEE COAL, IRON & RAILROAD COMPANY BIRMINGHAM, SOUTHERN DISTRIBUTORS UNITED STATES STEEL EXPORT COMPANY, NEW YORK

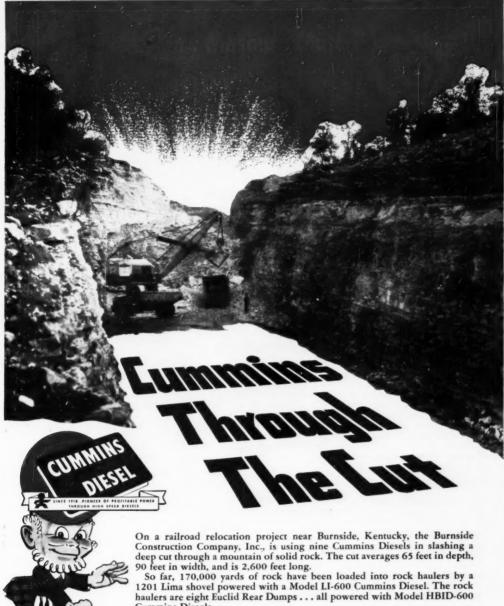
Every concrete paving job needs

AMERICAN WELDED WIRE FABRIC

STEEL



UNITED STATES STEEL



Cummins Diesels.

In one three-shift day, 4,123 yards of stone were handled by the Cummins-Powered shovel and hauling units. The round-trip haul that day averaged 5,330 feet . . . over a rough and rocky road.

Can you afford any other power?





#### A Good Shovel Works Better with an Amsco Dipper

Made of austenitic manganese steel for resistance to impact, pressure, and abrasion, Amsco dippers also provide the advantages of fast, full loading and quick, complete dumping. Design of Amsco dippers is based on an experience of forty years in fields of power shovel application. To make a good shovel work better, specify an Amsco dipper. Available in all standard capacities, up to ten cubic yards . . . and in types as outlined below.

#### AMSCO RENEWABLE LIP DIPPER

A strong, long-life dipper, designed for low overall cost. Patented Amsco construction makes it possible to replace worn lip quickly, holding down-time to a minimum. Teeth are also renewable and reversible.

#### AMSCO WELDED TYPE DIPPER

Designed to meet the demand for a strong durable dipper at minimum weight . . . for fast digging and economical use of power. Built in two types: Two Part (1/2 to 2 yards) and Four Part (2 yards and up); sections are joined by Amsco's patented plug welding process, with all joints overlapped for rigidity. Teeth reversible for double duty . . . and replaceable.



#### **AMSCO DIPPERS for Special Purposes**

AMSCO manufactures the famous Missabe Dippers and a wide range of cast manganese steel dippers and buckets for pull-shovels and underground work . . . as well as dippers of any design to meet any particular

#### AMSCO PARTS

AMSCO supplies cast manganese steel dipper and shovel parts, including: teeth, renewable lips, bails, racks and pinions, sheaves, gears, crawler parts . . . as well as a complete line of welding products for hardfacing and reclamation.

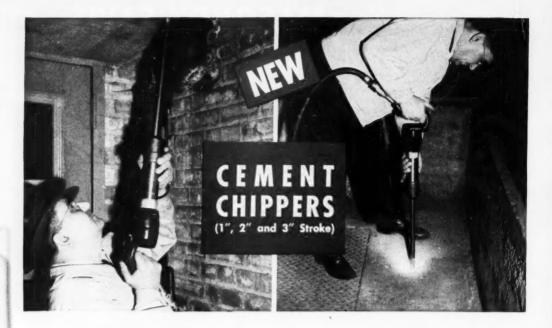
For full information on Amsco Dippers and partswrite for Bulletin 547-DS.



AMERICAN MANGANESE STEEL DIVISION CHICAGO HEIGHTS, ILL.

Foundries at Chicago Heights, Ill., New Castle, Del., Denver, Colo., Oakland, Calif., Los Angeles, Calif., St. Louis, Mo. Offices in principal cities. In Canada: Joliette Steel Limited, Joliette, Que.





#### ...WITH THE SMOOTHEST POWER-PUNCH EVER DEVELOPED IN AN AIR HAMMER!

FASTER PENETRATION — This hammer's piston knows where it's going every split second of its high speed travel. It's "with" the air from start to finish. No "kick-back". This amazing new accuracy in timing and control means maximum air line power applied to hammering — for truly amazing speed in penetrating masonry or metal.

EASIER HANDLING — 3" Stroke model weighs only 15 lbs.! Compact design, controlled power, make it safe, easy, and simple to work with even in tight quarters, on ladders, on scaffolding. Thor retainer locks in the steel for complete safety.

#### INDEPENDENT PNEUMATIC TOOL COMPANY

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#### THESE JOBS

are made to order for the new Thor Cement Chippers.

- Light concrete breaking
- Removing bricks
- Roughing cement surfaces
- Star Drilling
- Hitch cutting
- Calking
- Vibrating concrete forms
- General metal chipping



PNEUMATIC TOOLS . UNIVERSAL AND HIGH FREQUENCY ELECTRIC TOOLS . MINING AND CONTRACTORS TOOLS

# Barber-Greene

B-G COST SAVING BULLETIN No. 4903

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115M AM-5-4

### ILLINOIS CONTRACTOR DEMONSTRATES PORTABILITY OF NEW



### Jefferson County Starts Fourth Season with B-G Plant and Finisher

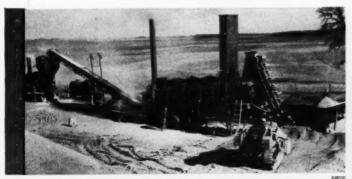
Jefferson, Wis.—Jefferson County highway authorities have found the answer to their road construction and maintenance problem in their "team" of Barber-Greenes, which consists of a B-G High Capacity Bituminous Plant and a B-G Finisher. After getting a late start in 1946, this team has seen full seasons of action thereafter. In 1947, it worked from Jure through most of December; and in 1948, it produced 42,193 cubic yards between April 19 and November 27.

#### Longer Work Season Possible

The Jefferson County Plant consists of a Mixer, Conveyor and Dryer and a 34 yard shovel for supplying the Elevator Hopper. They have found the Dryer highly satisfactory because it helps materially to lengthen the season. J. A. Perry, Highway Commissioner, reports that this team has mixed and placed material over old concrete, much over old black top and some over gravel road surfaces. Typical daily performance, with one man on the Mixer, one each on the Dryer and Conveyor, was 526 cubic yards in 416 minutes.

Most of their yardage has been laid by their B-G Finisher which consistently demonstrated its ability to lay a smooth compacted surface in minimum time, with minimum manpower.

Jefferson County's B-G High-Capacity Plant



#### OF NEW ASPHALT PLANT

#### MAKES FOUR DIFFERENT SET-UPS IN FOUR MONTHS TO HANDLE NUMBER OF JOBS

Ottawa, Ill.-The cost-reducing advantages of modern portable mixing equipment has been well proved by the J. P. Wetherby Construction Co., prominent local road contractors. In one season, their B-G Utility Plant operated near Lowell, then moved 30 miles to Spring Valley, 40 miles to Streator and another 40 miles to Sheridan. The work under contract consisted of several comparatively small and scattered jobs for the Illinois State Highway (specification type C-6). Officers of the J. P. Wetherby Co. realized that to handle this class of work profitably would require a plant that could be moved quickly and economically to various operating sites in order to minimize trucking distances. The Utility Plant with two-bin aggregate control was well suited to their needs. The Utility Plant includes a combination Mixer-Gradation unit mounted on a semi-trailer chassis: a Dryer, also mounted on a semi-trailer chassis and equipped with built-in Hot Elevator which reclines for transporting; a Cold Elevator and Reciprocating Feeder. Mixer and Dryer are equipped with adjustable jacklegs which elimi-nate cribbing and the Dryer has a high Roto-discharge which eliminates deep elevator pits. The Utility Plant is also available with a four cyclone Dust Collector which is mounted on a trailer chassis. Wetherby decided that for this work no dust collector was needed since there was no serious dust condition.

The plant was set to operate at 50 tons per hour, but as soon as production was well organized, the capacity was increased to 63 tons per hour and output was maintained at this rate.

Portability of this 8-G Mixer-Gradation Unit is duplicated by the other basic Utility Plant units.



34835

#### 73,000 TONS OF HIGH TYPE MIX FOR OKLAHOMA HIGHWAY 76

#### PRODUCED AT UP TO 133 TONS PER HOUR RATE BY **B-G HIGH CAPACITY PLANT**

Lindsay, Okla.—There is a fifteen-mile stretch of new asphaltic concrete in Highway 76 near here that attests to the efficient operation by Dahlgren-Brooks, contractors, of their B-G High Capacity Bituminous Plant and B-G Finisher.

Requiring 73,000 tons of high type mix, this job called for 7 inches of asphalt to be laid to a width of 22 feet on a base made of old oil mat which was scarified and shaped to grade. The mat was built in three layers, two of 212" with a 2" top course. The B-G Finisher made the three passes and was kept supplied by the B-G Plant which operated at 133-ton per hour rate on binder material and 120-ton per hour rate for the top course.

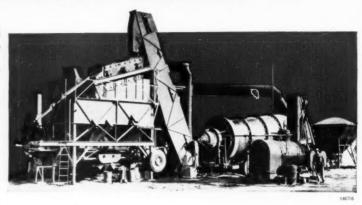
#### MECHANICAL DIFFICULTIES NON-EXISTENT

For the first 35 days of operation, records showed a total output of 33.815 tons for an actual hourly average of 107.3-which includes time lost waiting for trucks and delays from other sources. Much of the credit for the smooth plant operation was the result of the 4-bin cold feed which allowed the sand and crushed stone aggregate to be fed accurately to the dryer in four separate sizes under rigid control from bins and feeders.

While this B-G Plant is a high capacity plant for jobs requiring large volumes of material, it is nonetheless highly portable, capable of being dismantled, transported and reassembled with maximum speed and economy.

Dahlgren-Brooks' B-G Finisher shown resurfacing Highway 76 about 50 miles south of Oklahoma City. Note open traffic lane.





#### Maine Motorists Now Enjoy Part of World's Longest Asphaltic Super-Highway

Main Turnpike, Maine-Destined to be one of the world's outstanding engineering achievements, the Maine Turnpike is already proving itself to motorists who are using the first fiftymile section to be built on this ambitious project. This section, built at a cost of 20 million dollars, consists of a 300-foot wide right-of-way, a 94-foot roadway with two 24-foot paved strips and a 26-foot center parkway. Over 4,500,000 yards of borrow material were required and asphaltic materials were needed to the tune of 365,000 tons of asphaltic concrete base course, and 145,000 tons of surface course.

B. Perini & Sons, one of the country's leading contractors, mixed most of this material with two B-G High Capacity Plants with Multiple Aggregate Control. These plants have a combined capacity of about 230 tons per hour. Each of the Mixers was positioned in order to discharge into a common surge hopper to permit continuous operation of both plants, regardless of availability of

Actual laying of the roadway was accomplished with five Barber-Greene Finishers, which frequently operated in tandem. The base course consisted of two layers, each 2½" thick, and this was covered with a 2" surface layer. The B-G equipment operated with fine success on specifications calling for asphaltic cement of 85-100 penetration and an aggregate with a maximum size of 134". A plan view of a typical B-G High Capacity Plant setup is shown above which illustrates the compactness and relative simplicity of the type of B-G mixing equipment used by B. Perini & Sons on this notable job.

#### Maintenance Plants Cut Budgets for Many Cities and Counties

#### MAKE BITUMINOUS SURFACING MATERIAL AVAILABLE and PRACTICAL

Crown Point, Ind .-- City officials here are highly pleased with the cost-reducing performance of their B-G Maintenance Plant, as witnessed by a letter from Mayor Erlenbach, who said. Since the plant has been put in operation, it now costs the city about half as much to resurface a street with an asphaltic concrete mix as it did before, using an inferior mixture. Your equipment is sturdy, and requires only routine maintenance. As a result of our experience, I highly recommend B-G equipment.

Crown Point's B-G equipment consists of a Mixer, Dryer, Two-Gate-Feeder, and Charging Hopper. Their experience is typical of many rural towns whose location is such that contractors' services are not generally available. Such cities are finding that purchase and operation of B-G Maintenance Plants is the most practical and economical way to build and maintain city streets, parking lots, tennis courts, etc.



# B-G PLANT SOLVES COTTON WAREHOUSE PAVING PROBLEM

Yazoo City, Miss.—A unique paving job has been completed here to successfully solve the problem of warehousing cotton under dry, rodent- and termite-proof conditions. Formerly, in the huge cotton warehouses of the Federal Compress Co., cotton bales were stored on plank floors exposed to inroads of moisture, rats, termites, etc. To minimize such losses, the company called on W. J. Runyon & Son, contractors, to place asphaltic flooring in warehouse interiors and to pave driveways, parking areas, and runways.

Runyon purchased a B-G Maintenance Plant, set it up in the center of the area to be paved, and produced a 6% asphalt cement, 150 penetration, at the rate of 20 tons per hour. The result—a solid asphaltic flooring throughout the entire storage area that has conquered the rodent menace—and a virtually untouched field of prospects for many contractors who own or purchase

B-G Maintenance Plants.



# Fergus Falls Stretches Paving Dollars

Fergus Falls, Minn.—In the first 29 days this city operated its B-G Maintenance Plant, it produced 3925 tons of mix in 167 working hours—at a cost that saved the city well over 10% on its paving and maintenance program.

This community of 11,000 again emphasizes the fact that small communities, remote from large urban areas, often cannot obtain the services of experienced asphalt contractors. B-G Maintenance Plants fill this gap admirably and make possible broader enjoyment of paved streets in the smaller towns.

Roseburg, Ore.—Only three days between setups 23 miles apart—that's what Roseburg Paving Co. reports as normal procedure with its B-G Maintenance Plant. This, the firm head states, includes time for dismantling, traveling and reassembling the Plant.

Travel Plant Lays
13½ Miles in 159 House
for Burran County



Barron County, Wis.—Elmer R. Rogers, County Highway Commissioner, reports that on one job the County's B-G Travel Plant produced the mix for 13½ miles in 159 hours, and further points out that such performance is not exceptional for his Barber-Greene equipment. Normally, the plant averages 100 cubic yds. per hour but has done as high as 120 cubic yds. an hour. Last season, it produced 53,000 cubic yds. County roads take about 1,000 cubic yds. per mile. The plant is used both on the road and for stockpiling mix during slack seasons.

# 41 MILES IN ONE SEASON FOR THIS TRAVEL PLANT

Chippewa County, Wis.—Back in 1947, the County purchased a B-G Bucket Loader, and less than a year later had piled up a record of 75,000 cubic yds. loaded. At this time it was converted to a Paving Loader and a B-G Travel Plant Mixer was purchased. Last season, this combination placed 41 miles of new surfacing for the county—on one job completing 22½ miles in 17 working days.

# GET DOUBLE DUTY FROM THIS BUCKET LOADER

Mr. Taylor, County Highway Commissioner, points out that in spring and



fall the Bucket Loader is used as a loader for stock pile work, averaging 1,000 yards in a 10-hour day. This is chiefly gravel for repairing gravel roads. The B-G Loader is an additional asset to Travel Plant owners for, when not used with the Travel Plant, it is widely useful at all regular loading operations.

# B-G FINISHERS WORK "NIGHT SHIFT" TO MAINTAIN TRAFFIC



COURTESY OF MICH. STATE HWY. DEPT.

# Detroit Resurfaces 12.6 Miles of Arterial Street

Detroit, Mich.—This city's Grand River Avenue now has a potential capacity of 55,000 cars per day, thanks to its recent resurfacing project, which was carried on almost entirely at night because of the need for maintaining heavy daytime traffic during construction. B-G Finishers laid 12.6 miles of pavement, much of it over old streetcar tracks—at the rate of 300 tons per night on full width areas. Fast moving jobs such as these highlight the advantages of B-G Finisher operation.

B-G Finishers spread material evenly, compact it to a uniform density, and automatically compensate for the variations in the sub-grade. They lay a smooth surface which requires a minimum of rolling and is quickly ready for use with minimum interruption to

traffic.

# Portland Lays 1260 Tons In 9 hours with Finisher

Portland, Ore.—This city has reason to be proud of its record made recently with its B-G Finisher when it laid 1,260 tons of Amiesite—a 1½-inch thick mat—in 9 hours' time. This B-G Finisher averaged 802½ tons of assorted asphalt paving material placed in each 8-hour shift throughout the 1948 paving season. This includes surfacing rough streets with 1" to 2" layers and other routine maintenance work.

Many cities all over the world have found the B-G Finisher to be an invaluable maintenance tool, equally useful for new construction as well as maintenance jobs, including resurfacing city streets, large areas such as parking

lots, tennis courts, etc.

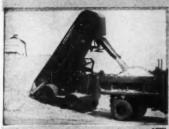


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# FOR

# COST-REDUCING EQUIPMENT, CALL

# Barber-Greene



B-G BUCKET LOADERS: Crawler or pneumatic-tire regunted. For low cost truck leading of bulk materials. Capacities up to 3 cs., yd. per min.



B-G DITCHERS: Crawler and pnoumatic tire mounted, for digging trenches from 5½" wide, 4' deep to 24" wide, 8' 3" deep.



8-G PERMANENT CONVEYORS: Complete, stend ordized equipment including corriers, take-ups, driven frames, etc.



G PORTABLE CONVEYORS: For moving all bulk
majorials and packaged goods. Variety of lengths, belt



SNOW LOADERS: Proumatic tired loaders for removing up to 20 cu. yds. per minute. Convertible to



B-G COAL YARD EQUIPMENT: Belt and chain-andflight Pertable Conveyers; self-propelled, pneumatictical, Also, honour our Unleaders.

# TIME is MONEY!

# **B-G Equipment Saves TIME**

Turning costly man-hours into low-cost machineminutes is good business. Barber-Greene has been designing and building time-saving equipment for more than 30 years. "Built by Barber-Greene" means extra values — extra value in design principles, workmanship, and materials to do a better job, at lowest cost, with minimum maintenance expense.

Your B-G Distributor has the knowledge and ex-

perience to provide you with expert equipment application advice. When you discuss material handling with him, you can rely upon the recommendations he makes.

Barber-Greene Distributors have factory trained service men who are ready to render you the maintenance service you require.

Barber-Greene	Company
Aurora, Illinois	
Cable address	"Bargreene"

Send information on the Barber-Greenes indicated below.

☐ B-G Mixing Plant for producing \_\_\_\_\_\_T.P.H. of \_\_\_\_\_\_

□ Finisher

☐ Heavy Duty Bucket Loader

Travel Plant

☐ Other B-G Equipment

☐ Have a representative call

Name

Firm Name

C.M. 28,750-8-1

Position

City

Zone

State

BARBER-GREENE COMPANY

Before You Bid ...
Before You Buy ...
Send This Coupon!

The coupon will bring you complete information on any Barber-Greene machine without cost or obligation.

We will be glad to have our representative call to discuss your material handling problems with you.

We maintain a Department for the sole purpose of solving your material handling problems.

Aurora, Illinois

Choose from America's



most complete line of trucks



for these 4 reasons

International Trucks are specialized for the job. International builds America's most complete line of trucks. It offers 22 basic models, 1,000 truck combinations ranging in gross vehicle weights from 4,400 to 90,000 pounds. It also offers 13 truck engines (gasoline, diesel, butane) as well as specialized units and parts, to satisfy individual hauling requirements. An International sales engineer who knows your business in terms of trucks helps you analyze your own hauling needs and select the right laternational Trucks to meet them.

For the 17th straight year International Trucks lead in heavy-duty sales. The country's most exacting truck buyers are the men who buy trucks of 16,001 pounds GVW and over. Their vote of confidence in Internationals is based on truck value—the same truck value found in every International ... light, medium, and heavy-duty.

More than half of all International Trucks ever built—in 42 years—are still at work. International has been building rugged trucks uncompromised by passenger car design or construction since 1907. International Trucks are built to last—and they do.

International Trucks are backed by America's largest exclusive truck service organization. 4,700 Dealers and 170 Company-owned Branches offer complete International Truck service wherever you drive a truck. Precision-engineered replacement parts, factory-rebuilt exchange units, and factory-trained mechanics are as close as your telephone. For the right truck to solve your hauling problems, see your nearest International Dealer or Branch.



International Harvester Builds McCormick Farm Equipment and Farmall
Tractors,...Motor Trucks... Industrial Power... Refrigerators and Freezers

INTERNATIONAL



TRUCKS

INTERNATIONAL HARVESTER COMPANY . CHICAGO



# It's A WaterHog

Yes sir! It handles anything from seepage te 15,000 gallons per hour. And it won't clog while pumping solids. Self-priming, of course, and fast. Has automatic seepage control, guaranteed 28 ft. suction lift, plenty of discharge pressure, and a built-in gasoline-engine that has the guts to keep going without fussing or babying under the toughest working conditions.

# But Never A Truck Hog

No sir! A Homelite Gasoline-Engine-Driven Pump is the last word in compactness. Fits in a corner of a truck or trunk of car. Requires no crew of men to unload it... no special planking to roll it on location. One man picks it up and carries it right to the spot you want it. Write, right now, for our new descriptive bulletin.



# with Homelite Carryable Pumps

HOMELITE CORPORATION, 1005 RIVERDALE AVE., PORT CHESTER, N. Y. Manufacturers of Homelite Carryable Pumps • Generators • Blowers • Chain Saws

# LOW GOST PER UNIT OF WORK

Suppose you're considering two competitive brands of wire rope. They look alike, but one sells for a little less than the other. Bargain? Often it's anything but a bargain. For purchase price alone isn't the measure of wire-rope economy.

Sometimes you may find a wire rope with a lower price tag than Bethlehem's. But how does the cheaper one compare in total service rendered? How about its Cost per Unit of Work?

What a unit of work is depends, of course, upon the industry involved. It can be a ton of rock moved by a power shovel. Or a car of coal hauled up a slope. Or a ton-mile in oil-country rotary drilling. But in any case, unless your final rope Cost per Unit of Work is low, the rope has not done an economical job for you. That's why first cost—purchase price—isn't the sole yardstick.

Bethlehem wire rope is a quality product, one conscientiously built for long-range economy. When you buy it, you are spending your money wisely. You are buying wire rope that mesns, in the truest sense, low Cost per Unit of Work.

AND THE PROPERTY OF THE PROPER



BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethinhom products are sold by Pethinhom Pacific Coast Seed Corporation

Expert Distributor Bathlahom Steel Expert Corporation



# A long drink for thirsty acres

Digging and maintaining thousands of miles of irrigation ditches requires a fast, efficient excavator that stays on the job with minimum time out for maintenance. That means a Bucyrus-Erie like this speedy, dependable 3/8-yd. 10-B dragline.

Owners and operators the country

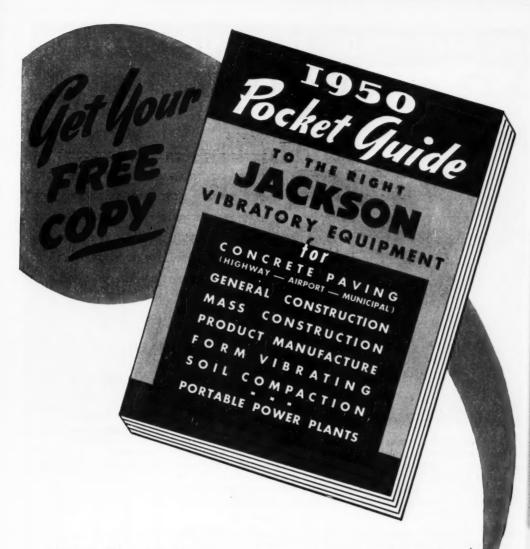
over know that the 10-B spells profits on many other kinds of jobs, too. It's quickly convertible in the field . . . deck machinery is compact, easy to get at for maintenance. Top quality steels and alloys give it strength and durability. Full-feel controls help boost output every shift. See your Bucyrus-Erie distributor for complete details.

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"ROCKMASTER" 16" is the greatest improvement in blasting methods since ATLAS introduced milli-second blasting!"

In underground workings, pits, quarries, and construction jobs you hear a lot of enthusiastic talk from men and management about the advantages of the Rockmaster "16" Blasting System.

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Ask your Atlas representative for the new Rockmaster booklet explaining how Rockmaster "16" fits into your operations.

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kmaster No.					Avg. Time of Each Delay from Zero			
		-			(milli-secends)			
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1							8	
2							25	
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10							250	
11							300	
12						,	350	
13							400	
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- SPEED PROGRESS



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Ten feet of water in fine sand might have made this a costly foundation -

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Why not take advantage of this time-proven fact? Your job may present more or less of a pumping problem. In any case, MORETRENCH has the equipment, the experience, and the personnel to help you solve it satisfactorily and economically.

When you're bidding a wet job, get in touch with us for a straight story on how to handle water!

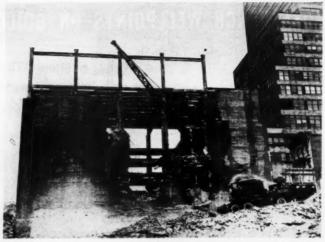
# MORETRENCH CORPORATION

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Chicago 18, Illinois



DISMANTLING OF 205-FT. OLD SMOKE-STACK of Georgia Lead Works, Atlanta, Gea, is done by Bulford T. Gasset, local contractor, with aid of tall tower of Tubelox steel scaffolding supplied by Patent Scaffolding Co. Same equipment was employed for erecting new stack.



WHAMMO! Steel ball tossed by Lorain Moto Crane crashes into wall of Consolidated Edison substation to make way for new Port of New York Authority bus station in Manhattan. Howard Collins Construction Co. is doing job. That's McGraw-Hill Building on right, where Construction Methods and Equipment is tenderly created each month—Mal Gurian photo



HERE'S SMART WAY to rig truck crane boom for safe travel—put hinge in boom and goose-neck it over truck cab. Boom can be straightened quickly by boom hoist lines, then is pinned together in working position. Neat method that avoids 'altering truck cab and provides full visibility for driver was worked out by Tony Marchese of A. Marchese Co., Milwaukee excavating contractors, who mounted this Schield Bantam crane on halftrack.





TO PREVENT SLIDES of material on slopes, caused by saturation of earth by subsurface water, horizontal drainage holes of 4-in. dia. are bored by Hydrauger machine. Into holes thus formed,



perforated liners are inserted to remove water. Machine utilizing auger boring element is operated by compressed air and can bore holes 200 ft. long.

# AVOID HIGH DEPRECIATION CHARGES

You don't have to tie up heavy capital in machines with high depreciation when you do breaking, drilling, driving or tamping. Specify the Barco Gasoline Hammer, industry's rough, tough, economical workhorse. Barco speeds up work schedules, handles intermittent or scattered jobs, avoids heavy transportation costs or carrying charges on idle equipment. Barco works in difficult or hard-to-reach spots, packs a strong wallop anywhere and anytime. Let Barco save you money. Write Barco Manufacturing Co., 1812 Winnemac Avenue, Chicago 40, Illinois. In Canada: The Holden Co., Ltd., Montreal, Can.

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PORTABLE GASOLINE HAMMERS BREAKING - DRILLING - DRIVING TAMPING

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# oddities



HAPPY BIRTHDAY, THEW! Turning the tables on their friends, Thew Shovel Co., Lorain, Ohio, sent out 145 identical birthday cakes on July 18 on occasion of firm's 50th anniversary. The cakes, prepared by local bakeries to Thew specifications, were delivered simultaneously in 125 cities by Western Union, accompanied by a greeting from Thew president, Chauncey B. Smythe. Here our own business manager, Howard Olsen, is about to wreck the beautiful birthday design on cake sent to our aditorial and business staff. Many Happy Returns of the Day, Thew!



ELLIPTICAL WHEEL, invention of John F. Kopczynski (right) of North Tonawanda, N.Y., is examined, during demonstration by representative of Buffalo District, Corps of Engineers, U. S. Army, to check on claims for improved traction in mud, snow and soft ground. Special axle-mounting device, according to inventor, eliminates bouncing effect associated with non-circular wheels.—Wide World photo.



EARTHEN WATERFALL is created as Griffith Co.'s Caterpillar diesel D8 tractor bulldozes material atop steep slope near Saugus, Calif., where hill is being leveled to provide fill for rebuilding state highway 99.



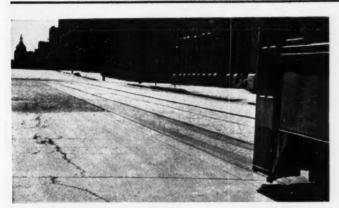
MODERN ICE-CUTTING METHODS are demonstrated to Eskimos at Point Barrow, Alaska, by Navy Seabees who use motor-driven circular saw mounted on two-wheel carriage. Ice is important source of water supply in Arctic.—N.M.E. photo.

Fage 42 -- CONSTRUCTION Methods and Equipment -- September 1949

# First Ten Years prove:

# Atlas Duraplastic\* Air-Entraining Portland Cement

makes concrete more durable



TEN YEARS AGO, in August, 1939, this concrete test paving was laid in Second Avenue North, Minneapolis. The badly scaled section of roadway in the background was made with regular portland cement. The foreground section, laid at the same time, was made with Atlas Duraplastic—the first commercial use of the air-entraining portland cement originated and developed by Universal Atlas.

Both sections, subjected to the severity of 10 Minneapolis winters and to heavy applications of de-icing salts, are shown above as they appeared in July, 1949—convincing proof of the characteristic durability of Duraplastic concrete, of its high resistance to freezing-thawing weather and the scaling action of de-icing salts. Longitudinal structural crack shows some ravelling. Note perfect transverse joint.

FROM its first small commercial use in 1939 to the super paving and construction jobs of today, the outstanding durability of concrete made with Atlas Duraplastic has won increasing recognition among engineers and contractors. Proof of its wide acceptance: In 1939, less than 60,000 barrels of Duraplastic were used for paving, then its sole use. In the following ten years, more than 25,000,000 barrels have been applied to an expanding variety of concrete uses.

For Paving Concrete, Duraplastic creates entrained-air cells in the concrete that minimize bleeding and segregation and thus protect it against the scaling action of freezing-thawing weather and de-icing salts (see photo). Less mixing water is required for a given slump. The resultant mix is more plastic, more cohesive, more uniform. It dumps, screeds and finishes easily.

For Structural Concrete, Duraplastic imparts to the mix the extra plasticity that aids proper placement. Water gain and segregation are reduced; surface appearance is improved. Because of these advantages and added durability, architects, engineers and contractors today rely on Duraplastic for all types of mass and structural concrete-for foundations, walls, floors, columns and other construction. And they find it readily adaptable to slipform work, gunite, stucco and other uses. For Concrete Products, finished units of block, brick, pipe, drain-tile, silo staves, etc., exhibit greater resistance to passage and absorption of water. For machine-made products, manufacturers find Duraplastic permits a damper mix that is more cohesive, holds together better and feeds easily through machines. Plants report savings in fewer culls and throwbacks and less breakage in handling green products.

For construction needs of today and tomorrow, Duraplastic offers better concrete at no extra cost. It provides the precise amount of air-entraining agent interground with the cement for satisfactory field performance. It complies with ASTM and Federal specifications, sells at the same price as regular cement and calls for no unusual changes in procedure.

Send for New Free Booklet, "A Decade of Atlas Duraplastic Air-Entraining Portland Cement." Write to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

OFFICES: Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.

"" Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

ATLAS DURAPLASTIC

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MAKES BETTER CONCRETE AT NO EXTRA COST



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# CONSTRUCTION METHODS AND EQUIPMENT

# **Construction Can Be Safe**

CONTRACTORS can't control the weather, floods, bad ground and a host of other costly obstacles put forth by nature. But they can control accidents—the most costly of all construction adversities.

By its very nature, construction is a dangerous business. These dangers, unless combatted in advance, are bound to produce accidents. And accidents mean misery to those involved and their families—and considerable direct expense and greater unknown contingency cost to the contractor.

Elimination of human suffering and saving of accident costs, either or both, should be sufficient incentive to spark a vigorous safety program on every job. But safe construction procedure means even more—if more incentive is needed—in that a safe job is invariably a good job, a smooth-running efficient job. For experience has proved over and over again a job planned for safe operation is a well-planned project throughout. The safe way is always the best way.

The contracting fraternity has done a lot to reduce construction accidents. Some firms—all too few—are really safety conscious, and many groups, especially certain A.G.C. chapters, have made safety programs part of their regular business. The effort has always paid off in compensative credit ratings for individual firms and in lowered compensation rates in the association's areas.

There is nothing mysterious or difficult about safety in construction. It is simply the application of good common sense to each operation with the idea of making the work efficient and safe. But the determination to make the job safe must stem from the home office and from top officials. If they are really sold on safety, their enthusiasm will spread down through the supervisory forces to the workmen. A sound safety program includes good operation planning, regular conferences among the field staff, and proper instructions to the workmen.

How to start? If you need help, try the Construction Section. National Safety Council, 20 North Wacker Drive, Chicago, who offer membership to contractors at piddling cost compared to benefits received. If you're interested in construction safety for sure, you might send a representative to the Construction Section, National Safety Congress, Stevens Hotel, Chicago, on October 25-26. This two-day session will be packed with safety ideas no construction man can afford to miss.

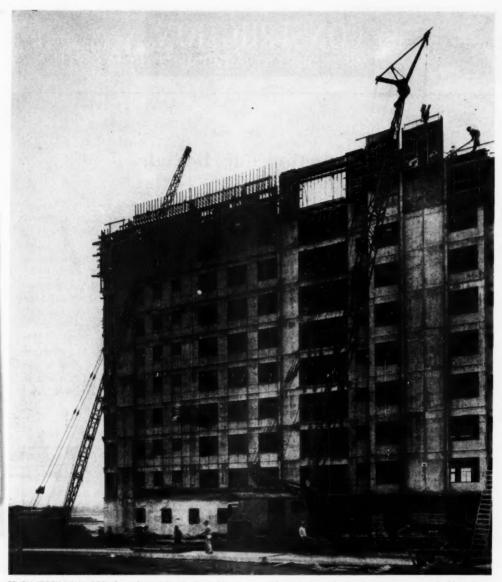
Construction can be safe—but only if those in it are determined to make it so. It means thinking safety, preaching safety and practicing safety.



SPIKE SEZ: You fellows must realize that safety on our construction jobs starts right here in the home office. If you're really sold on the idea, let's set up a real safety program that will carry your determination to make our operations safe right down to the last man on the job.

ON THE COVER—Working on the levee at Louisville is an Allis-Chalmers HD19 tractor hooked up to a Euclid loader. Big earthmoving outfit, belonging to Terry & Steadman, Bay City, Mich., is working on part of extensive U. S. Corps of Engineers project planned to keep Ohio River away from city's door.

COMING NEXT MONTH—First of three articles on safety in construction, based on DuPont's manual of instructions to all its contractors and subcontractors. The editors believe this to be the best, most practical and workable safety manual yet compiled. Don't miss the opening installment.



TENTH STORY WALL FORMS are hoisted by Northwest No. 6 crane with 115-ft. boom for San Francisco apartment building. Lorain 41 crane with a 100-ft. boom raises other form panels. All this work was accomplished from ground by use of these two rigs.

GOOD USE WAS MADE of mobile equipment to work from the ground in raising forms and hoisting concrete for four 10-story San Francisco apartment buildings by MacDonald, Young & Nelson, Inc. contractor on the job. A Mixermobile with a 116-ft. tower, a Northwest crane with 115-ft. boom and a Lorain crane with a 100-ft.

boom were the principal equipment items for this work.

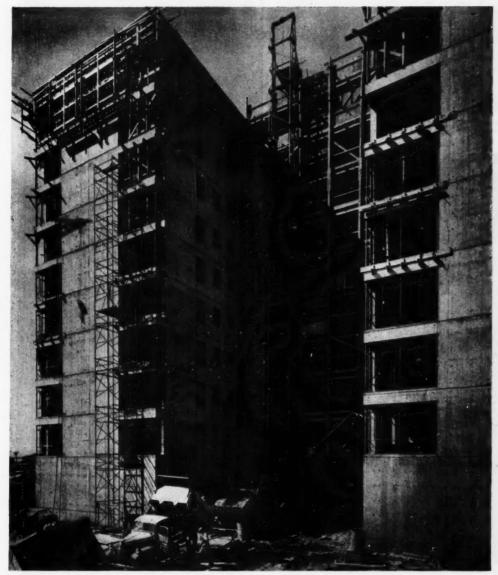
These high towers and booms are far beyond the manufacturers' recommendations. However, careful operation by the contractor

**Long Booms and Tower** 

high equipment.

Because the architectural design was clean cut all the way up the building, only one set of forms was required for each building. These

proved the practicability of this



CONCRETE IS MIXED and hoisted by this mobile equipment, a 2-cu. yd. Mixermobile with 116-ft. tower. Only one tower—and that one mobile—is required for four apartment buildings. Small tower at left is for plastering subcontractor.

# **Pour High Building Concrete**

forms were faced with plywood and coated with a lacquer-type protectant. After two or three uses, the form surface was sanded down and re-lacquered. By the time the forms reached the top of the build-

ing, the surface was harder and smoother than when the job started.

All forms were hoisted by the cranes operating from ground level. Interior forms for walls and floors when stripped were assembled in bundles. These were rolled to a window and hoisted by one of the cranes.

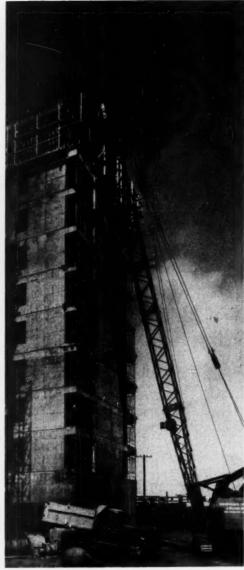
The tower on the Mixermobile was built up as the job progressed. Thus, when pouring the ninth floor the tower was about 100 ft. high and when pouring the tenth floor it was 116 ft. The unit was suf-



COMPARTMENTIZED DUMP TRUCKS bring dry concrete batches to Mixermobile from 120-ton semi-automatic Blaw-Knox plant.



TOP OF HOIST TOWER is removed by Northwest crane after a pour is finished.



CONCRETE BUGGIES and other placing equipment are also moved by Northwest crane.

ficiently mobile to keep up with work on each of the four buildings. In fact, in less than half an hour after a pour was finished, the unit was ready to move to its next location. By the time an hour had passed, the next pour was ready to start. By such maneuvering, only one hoisting tower was required for the four buildings.

Because of the height of the tow-

er, it was not possible to fold it down as would have been done under normal conditions. As the unit moved with the tower upright, it was necessary to drive slowly, as potholes in the road would cause the tower to sway considerably. After the tower was 60 ft. high, sections were removed and loaded on small dump trucks during the moving process.

This simple and effective construction system was ideally suited to the buildings involved. Had the buildings been higher than ten stories, the equipment could not have worked from the ground. If the buildings had been brick faced or if a structural steel frame had been involved, an entirely different sequence would undoubtedly have been adopted. The number of



MIXERMOBILE with two sections of tower loaded on small dump trucks moves from one 10-story building to another. Northwest crane follows to reassemble hoist tower.



DEVELOPMENT includes four 10-story reinforced concrete apartment buildings and ten 3-story wood frame buildings for a total of 683 apartment units.

buildings was just right for the amount of equipment used. If there had been more than four, more equipment would have been required and more idle time might have been involved. As it was, the Mixermobile and the two cranes were kept busy all the time. This is a fine example of how careful planning can cut costs.

This \$6,000,000 apartment devel-

opment is the initial step in a 20acre apartment and commercial area in the southwestern part of San Francisco. Stoneson Bros. are developers. Dallas "Pete" Young is in charge of field construction for MacDonald, Young & Nelson, Inc., general contractors of San Francisco. Lee Arnold was general superintendent for the contractor on the Stoneson job.

# CUTS AND FILLS

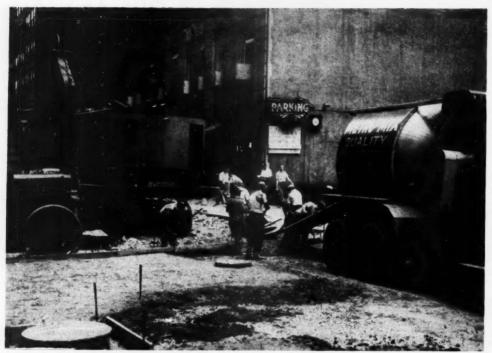
HUNTING a gas leak with a match is one sure way of enticing an accident. Another is to move a big crawler-mounted piledriver over soft, uneven ground with the heavy hammer carried at top of high leads. Don't bother to set the mats crosswise for greatest stability, but speed up the move by stretching the mats out lengthwise. Then, just to make sure something happens, let the oiler be working on the hammer during the move. All set? It happened all rightthe rig turned over, killing the operator. The lucky grease monkey jumped into a mud bank and lived. Accidents don't happen-they are caused by lack of common sense.

OUR COMPANY ECONOMIST—who has a high batting average in predictions coming true—forecasts "that price adjustments this year, particularly in construction, where it's been about 20 percent, have been sharp enough to uncover layers of latent demand that will keep business moving along at high levels well through 1949. There's lots of consumer purchasing power around."

JOINT COOPERATIVE COMMIT-TEES between associations having similar interests are mighty good means of thrashing out a lot of mutual problems, and in keeping differences of thought and action from becoming problems. The Associated General Contractors have been most successful in establish. ing such committees with the architects, civil engineers, and highway and airport engineers. Latest move is the sensible organization of a similar committee between A.G.C. and equipment manufacturers. A fine way to get machinery makers and their best customers together for mutual benefit. Even better equipment and better construction performance should come from these joint sessions

A.R.B.A. and the American Association of State Highway Officials also announce the formation of a long overdue joint cooperative committee. A.R.B.A. members of the committee come from all branches of the roadbuilding industry, so this committee shows promise of real accomplishment.

REVISION of an earlier decision of A. F. of L. Building Trades Dept. to abandon the National Joint Board for jurisdictional disputes is good news to construction. The Board is needed, it has done some excellent work, and no other agency in the past has proved so capable of settling construction's most aggravating and difficult problems. The most important point in this contractorlabor set up is that the job keeps going pending decision of disputes by the Board.



Mixer dogs heels of shovel as . . .

# **Hustling Job Repaves New York Streets**



OLD CONCRETE SLAB with blacktop is torn up and loaded by Bucyrus-Erie shovel without previous breaking-up except for channel cut by jackhammers along gutters. Light poles, marquees, and sidewalk superintendents interfere with shovel work, but capable operator keeps job going at fast clip.

KEEPING PACE WITH the usual rush-and-hurry of New York City, experienced repair men made short work of tearing up and resurfacing 43rd St. from Madison Ave. to the Avenue of the Americas (6th Ave.).

Frank Mascali & Sons, Inc. of Flushing sublet the job of removal to Cappy Construction Co., Great Neck, L. I. The capable shovel operator, hampered greatly by light poles, marquees, and limited swing area, performed his difficult job of tearing up the old surface with amazing speed. Hardly clear of the swing of his counterbalance, a pick and shovel crew leveled the fill and were followed immediately by a three-wheel roller running from curb to curb.

Stakes were driven, grades read, lines strung and temporary plank stoppers put in place almost as quickly as it takes to write these words. Catchbasin tops, sewer covers, and water valve caps were shimmed or cut in to correct levels



EXTENSION ON MIXER CHUTE swings just right radius to lay 6-in. concrete slab from curb to centerline. Two truck mixers, side by side, thus cover 34-ft, width. Surface is broomed and grade set 3 in. below set manhole and water valve caps.

by the general contractor, and any other utility covers not so checked by their respective company crews were boxed around so as not to hold up the pouring operation

Transit-mix trucks were snaked in between the numerous stakes and covers to a position where their extended dump chutes could be swung in a semicircle from curb to street centerline. In this way, two trucks side by side could pay out the entire 34-ft. width of 6-in. Class D concrete base by driving forward slowly as the contents were dumped and the chute swung from curb to center. Grade was kept 3 in. below tops of covers.

As soon as possible, essential traffic was allowed to run on the concrete base. Finally a 3-in. black-top wearing surface was applied and normal traffic was then resumed. Business establishments were inconvenienced only one day each, on the average, during the repair work.



HARDLY CLEAR of counterweight, hand-crew grades and fills. Grade lines are strung exactly shovel-blade height above desired subgrade and a quick check this way saves measuring. Extra stakes are removed and roller, running from curb to curb, packs subgrade.



NO WAITING HERE! If utility companies are late, box around the covers and keep pouring. Fill in later when covers are set to grade. Blacktop, 3 in., completes job. This is but one example of how the project was kept moving at top speed.

# Get the Most Out of Your Earthmoving Equipment Dollar

By R. A. ZIBERT, Field Engineer, R. G. LeTourneau, Inc.

EVER - INCREASING labor costs are forcing contractors to seek greater efficiency in the use of plant and equipment to keep unit costs down. A careful analysis of earthmoving operations will often reveal short cuts and better procedure that will keep equipment operating at peak capacity—resulting in considerable cost saving.

The end result of all earthmoving is essentially the same. But the method of operation varies with the equipment used. Since a coverage of all the methods combined would be more confusing than helpful, this summary is confined to the crawler and rubbertired tractor-scraper method. The same procedures outlined here can be followed in studying operation of other equipment.

Consider the different steps of the earthmoving operation. They are: Loading the material, transporting to the fill, and dumping or spreading. Efficient production depends simply on (1) size of the load; and (2) time required to complete the cycle of load, haul, spread and return. For peak production we want the maximum load and shortest cycle time.

### Loading Cycle

Let's examine the first phase of operation—loading the scraper. Careful thought about the following list of key questions offers a handy guide for achieving highest scraper efficiency.

- 1. Are maximum loads being ob-
- 2. Are they obtained in 100 ft., or less?
- 3. Is heaped loading done in 1 min., or less?
- 4. For pusher loading, are units spaced to enter the pit at 1½- to 2-min. intervals to keep the pusher tractor working efficiently?
- 5. Is the pusher chain-loading or shuttle-loading where possible, to reduce travel and maneuvering time, in the pit?
- 6. Would a rooter speed loading in hard material where loading time and distance are excessive?

Proper loading power is the important factor in 1, 2 and 3. Ex-

perience has shown the advantages of using additional power for pushing or snatch-loading to obtain maximum loads, especially for high-speed units. But if the pusher tractor does not have sufficient power to get capacity loads stipulated in 2 and 3, its usefulness is limited. An extra 50 ft. or halfminute to pile another ¼ yd. into the scraper costs, rather than saves, you money. Use sufficient power to get the largest load in the shortest distance and time.

A scraper fleet capable of keeping the pusher busy (4), without holding up scrapers in the cut, will result in a sizable production increase. Dead-heading time of the pusher can be reduced considerably by shuttle- or chain-loading (5), where the layout of the cut in relation to the fill allows.

In some instances, even the largest tractor cannot obtain a heaped load (6), due to difficulties encountered in digging tough materials as hardpan or stratified shale. Here, dragging a rooter behind the pusher tractor will, in many cases, permit an increase in yardage output that will more than justify cost of the rooter.

## Travel Time

Savings in time, no matter how small, will result in lower costs when multiplied over the duration of the job. Check list of questions for the hauling or travel cycle is:

- Is the haul road good enough to allow travel in high gear, except on steep grades? Can 14 mph. be maintained with rubber-tired units?
- 2. Is a motor patrol available for keeping the haul road smooth? Or if that is not feasible, are scrapers being used?
- 3. Are turns being made in ¼ min. or less?
- 4. Is full power being utilized for quick acceleration?
- (1) A rough, rutted road increases rolling resistance for both tires and tracks and is, therefore, a power and time-consuming factor. On many jobs a small amount of road maintenance has enabled

the operator to travel one gear higher, cutting trip time considerably. Make the most of the speed your machine was designed for,

The motor patrol (2) is a logical tool for road maintenance, dressing slopes and finishing work. If a patrol isn't available, dropping the scraper bowl, bringing the tailgate forward and grading the haul road on intermittent return trips to the cut will do much toward keeping the haul road in good condition.

Numerous time studies have revealed that a full 180-deg. turn can be made in 1/4 min, or less (3). Even this small time can be reduced. A rubber-tired prime mover-scraper combination 55 ft. long, turning at a 65-deg. angle, will travel about 140 ft. to complete a 180-deg. turn. The same unit turning at a 90-deg, angle will travel only about 85 ft. in making the same turn. The answer is, naturally, for the operator to make his turn at the shortest angle possible. Those long looping turns are costing you money.

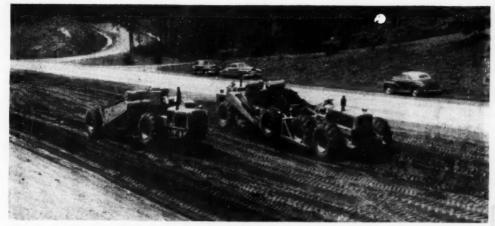
An example of the advantages of using the full power and speed of your equipment (4) can be taken from your own driving experience. Two automobiles are standing at an intersection waiting for the "go" signal. When the lights change, the first driver starts out in first, accelerates, shifts into second, accelerates, and gets into high. The other driver shifts directly into high. Experience shows that the first driver gets there first.

The same principle can be applied to earthmoving equipment. Lugging power is seldom needed on the haul road, except on the steepest grades in the lowest gear. A good general rule with fast equipment is not to lug, but to shift to the lower gear. This minimizes the accelerating time getting back to higher gear, and results in higher average speed. Use available speed to the fullest; you paid for it.

## **Dumping and Spreading**

In practically all operations involving scrapers, the material is spread in even layers, rather than dumped in piles. Pertinent questions for studying the spreading cycle are:

- Are loads being spread with machine in the highest possible gear?
- 2. Is the spread made in ½ min. or less?
- 3. Is the spread being made within a distance of 65 to 100 ft.?
- 4. Is the operator leaving the fill as quickly as possible?



ON SCRAPER OPERATIONS, coordination between scraper and pusher is necessary to keep non-productive time at a minimum and to get most out of your earthmoving dollar.



SNATCH TRACTOR in front of scraper, in addition to push tractor, is often advisable under tough loading conditions to reduce time of loading cycle.



ROOTER on rear of push tractor can keep tough ground pits loosened up for faster loading. Don't slow down your operation cycle by making scraper excavate hard ground.



DOWNHILL LOADING and adequate pushing power mean higher yardage output and lower costs—take advantage of them whenever possible.

Where soft and sticky materials are being handled, more rolling resistance on the fill plus lumpy spreading of the load necessitates travel in a lower gear than on a dry fill with free-flowing material. Too high a spreading speed with clay gumbo, for example, would cause open spots in the spread resulting in an uneven fill. On the

other hand, if sand is ejected at too slow a speed, it builds up in front of the scraper blade and slows machine travel.

For efficient spreading, the loads should be ejected in ½ min. or less, over a distance varying from 60 to 100 ft., depending on the material (2, 3). Best spreading time cannot be obtained unless the operator is

leaving the fill by the shortest possible route (4). The sooner he hits the haul road, the sooner he can get into high gear to return for another load.

### Maintenance Important

Unforeseen equipment breakdowns are to be expected, but many failures can be traced directly to lack of proper maintenance. Following check list deserves your very careful attention.

- 1. Are all adjustments maintained?
- 2. Are blades sharp and not worn excessively?
- 3. Are cables running free at all times?
- Is tire pressure at maximum for smooth, hard roadways? At minimum on soft, high resistance road work.
- 5. Are all mechanical parts greased and operating freely?

If you can answer yes to all these questions you're doing all right. Otherwise you'd better get busy.

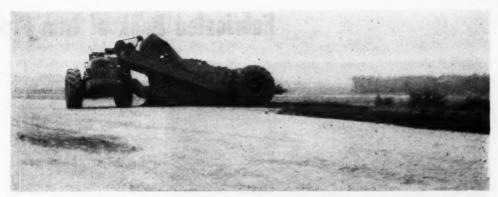
### The Pay Off

All the points mentioned so far might seem small matters, when





HAUL ROADS poorly maintained and full of sharp curves (top) cut down travel speed and slow up the operation cycle. Keep curves flattened out and roadway in good shape (bottom view) for maximum hauling efficiency—and lower costs.



DUMP FAST, turn quickly and get back to the pit in a hurry is the formula for efficient operation on fill. Proper dumping speeds are controlled by character of material being spread. Don't let material pile up in front of load; and don't dump so fast that holes and bumps are left in fill.

taking them separately. Multiply each of them over the duration of the job though, and take a look at what you save.

Consider an ordinary job on which four rubber-tired units and two pushers are being used to handle 500,000 yd. over a 1,500-ft. haul. Now, we run through the job operations and check them with the suggestions made here. Let's assume that this check results in (1) increase of ½ yd. in each load; (2) elimination of one pusher; (3) a ½-min. reduction in

fixed time; and (4) increase in average travel speed of 5 mph. Here's how the job stacks up:

Fixed time for load, spread turns, acceleration (minimum)	3.0	After)
Travel 1,500 ft. and return	3.4	2.3
Trips per 50-min. per machine	7.8	10.4
Pay yards per load	11.5	12.0
Total new words ner he	212	436

With ownership and operating costs at \$8.50 per hr. for scraper units and \$7.00 an hr. for a pusher, the net cost per yd. becomes:

Total owning and operating costs (not including super- vision overhead, etc.)	(Before \$48.00	After) \$41.00
Total hourly yardage	312	436
Cost per yd.	\$0.154	\$0.094

Now apply this 6-cent difference to the 500,000 cu. yd. involved in the job. You save a neat \$30,000.

When you buy earthmoving equipment, you pay for its power. speed, capacity and maneuverability. Only by using all these features to their fullest advantage will you get the most out of your earthmoving equipment dollar.

# Preview of a Big Event...



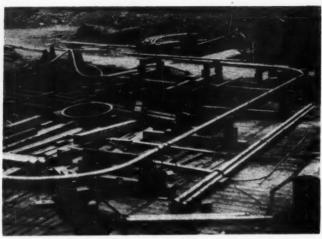
THAT OLD CONSTRUCTION MAESTRO, our own Spike Hennessey, will be on hand to spark the discussion at the Construction Session, National Safety Congress, Stevens Hotel, Chicago, Oct. 25-26. Here's a crystal ball view of Spike in action at the Equipment Safety Forum to be held the afternoon of

Oct. 26. Yep, that's Ye Ed in the center of the panel, acting as moderator, with a group of contractors and equipment manufacturers around him to answer your questions about better and safer operation of construction machinery.

The two-day session, which opens Tuesday afternoon, Oct. 25,

also includes practical construction safety talks by Mervyn G. Gaskin, Detroit contractor, Robert L. Jenkins. Chief of Safety Division, U. S. Corps of Engineers, and Fred Rowe, Columbus Ohio contractor. It all adds up to a program no construction man can afford to miss.

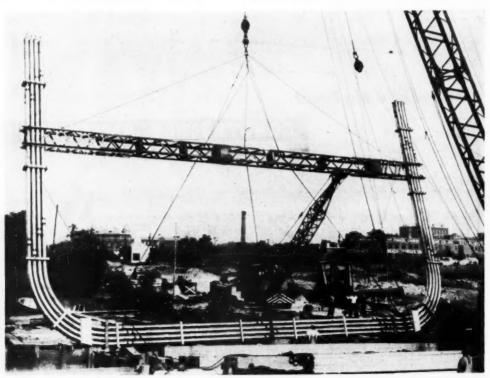
# **Fabricated Bank of Iron Pipes**



1 FIRST OF EIGHT galvanized, extra heavy, wrought iron tubes is laid out on temporary pier erected in connection with widening of bascule bridge in Bronx, New York. Tubes were capped and tested over night with air at 90 psi.

AN INTERESTING extra added to a bridge-widening contract in the Bronx, New York City, was the fabrication and placing of a nest of U-tubes under Westchester Creek. When the combine of Peter V. Connolly Co. and Senior & Palmer, Inc. was awarded a contract to double the width of the double-leaf bascule span on the Unionport Bridge, the New York City Public Works Department saw a good chance to have the contractors design, fabricate and place a set of tubes to supplant the oftbroken cables lying on the creek hed

Eight U-tubes were made from extra heavy, galvanized Byers wrought-iron 5-in. pipe. These were clamped on 8-in. centers in two beds of four tubes each; the sides of the U being 40 ft. high and the bottom 75 ft. across. The bank of tubes weighed 13½ tons and sections of crane booms, re-



2 DERRICK BOAT with three-part line lifts carefully slung 131/2-ton nest of tubes, reinforced with 4-ton spreader made from crane-boom sections with extra angles and . . .

# Set as Unit for Cable Crossing

inforced with angles and attached as a spreader, brought the total weight up to 18½ tons.

The tubes were capped and tested with air over night at a pressure of 90 psi. The following morning the reading was down slightly, but came back to the original with the heat of the day. In addition to the bolted wooden clamps, concrete blocks were poured at the base of the curves as an added precaution. A derrick boat from Allen N. Spooner & Son, Inc., New York City, was nosed into the narrow passage. Most delicate part of the job was in the placing of the heavy unit in a 2-ft. clearance space between the old bridge piers and the new cof-

The bottom of the tubes was to lie at grade -23 or 5 ft. under



TOP BRASS OF Peter V. Connolly Co. and Senior & Palmer, Inc. who handled job as extra on bridge contract. Left to right, Ed Palmer, Jim Armstrong, project manager for combine, and Pete Connolly.

the creek bed. Mud was removed to -25, sandbags dropped and soundings taken until the proper level was reached. The derrick boat, fitted with three parts of cable instead of the usual block-and-bite, lifted the carefully-slung tubes, boomed out, and set them on the sandbags under the creek bed

with almost unbelievable ease. The rest was simple, and now New Yorkers in that area who are supplied with power and telephone cables through the new tubes can rest easier knowing that service will not be interrupted again by the possibility of a dragging anchor severing the cables.



3 ...LOWERS IT into creek in narrow space between existing bridge piers and new cofferdam wall. Trench was dug and sandbagged to proper level to hold tubes 5 ft. under creek bed.

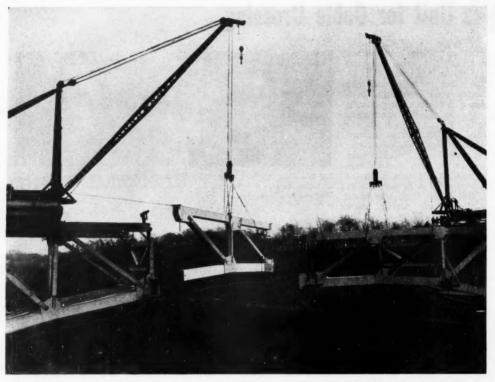
# **Shadow Board Indicator for Cage Hoisting**



A POSITIVE INDICATOR for the position of the cage in multi-story tower and elevator hoisting was devised by Turner Construction Co. on the John Hancock Mutual Life Insurance Co. building in Boston. It consists simply of one or more horizontal boards placed under the cable directly in front of the hoist drum.

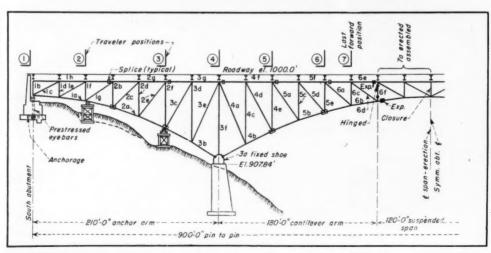
A fixed overhead light casts the

shadow of the cable on the board. Immediately after the hoist was installed and tested, numbered strips designating each floor stop were painted on the board under the cable shadow as the cage was stopped at each floor. A separate board is used for each wrap of the cable. The shadow boards may be shifted slightly to compensate for cable stretch.



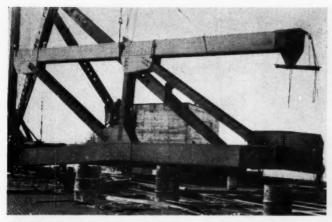
TEAMWORK by two big travelers makes short work of closing a 3-span cantilever truss bridge. It's 220 ft. from top of trusses to terra firma.—Akron Beacon Journal photo

# Two Travelers Close Akron Bridge



ONLY SEVEN MOVES were needed by each traveler to erect 5,500,000 lb. of steel in 900-ft. bridge. Steel was hauled out to

travelers on trailer trucks running on steel grid flooring which was laid over one-half roadway width.



EASY DOES IT... Assembled on bank, 60ft. half-truss section of suspended span is hauled out on steel grid flooring to waiting traveler and is...



2... swung into position and pinned to end of cantilever

# By S. O. FORSSMARK

Chief Engineer, Wilbur-Watson Associates Cleveland, Ohio

MAKING THE FINAL CLOSURE on the 3-span high-level cantilever bridge at Akron, Ohio was no great problem for Bethlehem Steel Co., subcontractors on steel erection. They simply assembled two halfsections of each central suspended span, wheeled them out to the ends of the erected cantilever arms, picked them up simultaneously by two big travelers, lowered them into position and pinned them together at the center line of the bridge. This method was faster and much simpler than erecting the trusses piece by piece to final closure.



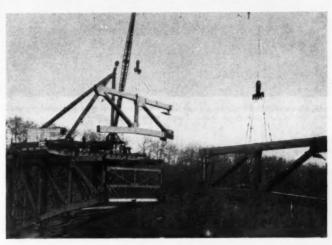
Each half-section of truss, made up of two 30-ft. panels, weighed about 40,000 lb. To swing them into position, the big stiffleg derrick travelers were moved out to next to the last panel point on each cantilever. This made a 60-ft. reach when lowering the truss sections into final position. Truss ends were pulled into alignment for pinning together at the center line of the bridge by the travelers pulling on wire ropes through sheaves attached to opposite sides of the cantilever spans.

Akron's high-level bridge, costing \$2,000,000, was opened to traffic July 14. It is a 3-span, 900-ft.

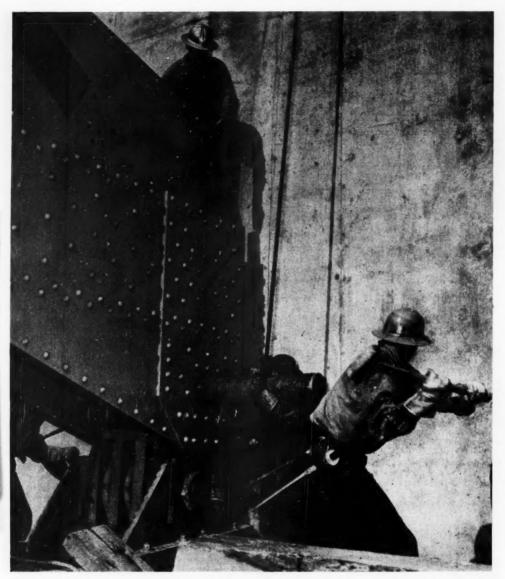


3. . . and supported by load line until other traveler . . .

1 . . . picked up by traveler . . . .



4. . . brings its half-truss around to make closure.



MASSIVE IS WORD for abutment anchorages. Workman drives 7-in, pin connecting end of anchor span to prestressed links of grillage embedded in concrete.—Akron Beacon Journal photo

deck-type cantilever, with 210-ft. anchor arms, 180-ft. cantilever arms and a 120-ft. suspended span at the center. All truss panels are 30 ft. Located on State Route 8, just outside of Akron, Ohio, the new bridge crosses Cuyahoga river valley 220 ft. above streambed.

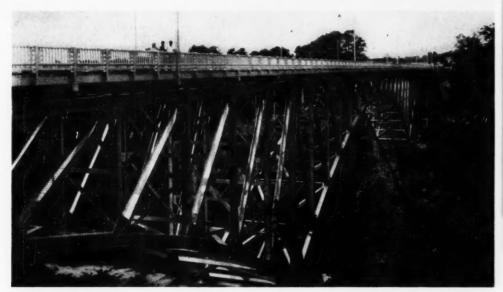
Deck steel is conventional steel floor beams and stringers carrying 5-in. open steel grid on the roadway and 2-in. steel grid filled with lightweight concrete on the 6-ft. sidewalks. The roadway is 56 ft. curb-to-curb, carrying two 26-ft. traffic lanes separated by a 4-ft. raised, steel plate median.

### **Prestressed Truss-Anchorages**

The anchor spans are tied down to steel grillages embedded in the concrete abutments. Anchorage links at each truss end were prestressed for a 500,000-lb. uplift. Four hydraulic jacks were used at each anchorage, under jacking frames attached to the rocker links of the abutment castings. This prestressing was done prior to the start of truss erection.

The 210-ft. anchor spans were erected by cantilevering out over two falsework bents on each river





COMPLETED BRIDGE (Top) carries open steel-grid flooring for two 26-ft. traffic lanes separated by a 4-ft. welded steel raised median (Bottom). Final paint coat is aluminum.

bank under the second and fifth panel points. The 180-ft. cantilever arms then were cantilevered out over the two piers, and the two half-sections of the 120-ft. suspended span lowered into place to make the closure. Erection of floor beams and stringers followed right behind the truss steel and sway bracing.

Both travelers worked on top of

the floor steel at all times. Delivery of steel to the travelers was expedited by paving one-half of the roadway with the steel grid flooring to carry trailer trucks delivering the steel.

Bates and Rogers Construction Corp. was the general contractor, with C. T. Smith, general superintendent and M. C. Warmbier, general foreman. Harry Hiscott was superintendent of erection for Bethlehem Steel Co., subcontractor for the superstructure.

The bridge was built as a federal-aid project. It was designed by Wilbur Watson Associates for Summit County, Ohio, with Arthur Ranney, county engineer. Clifton Newhall was resident engineer on construction for the Ohio Department of Highways.

SURPLUS 20-ft. tanks, weighing 15 tons each, are welded together in pairs, bottom to bottom, for 56-mi. tow down Missouri River. Moving by water saved dismantling tanks, otherwise necessary for overland transportation.

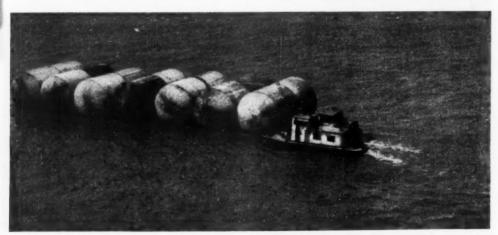
# Big Tanks Welded Together for Moving in River Tow

HOW WOULD you move 18 big steel tanks 18x20 ft., weighing 15 tons, 56 mi. without dismantling? The arswer is simple: Just turn the job over to a contractor and quit worrying.

That's what the George S. Mepham Corp. of East St. Louis, Ill., did after they purchased the surplus tanks from Weldon Spring Ordnance Works 56 mi. up the Missouri River above St. Louis. Vollmar Bros. Construction Co., St. Louis got the job and figured out the best way to move the units by floating them down



2 SEVEN PAIRS of tanks and one single unit ready to be rolled into river for tow from Weldon Spring, Mo., to East St. Louis.



ON THEIR WAY with full clearances all around. Two towboats are dwarfed by seven pairs of 20-ft, tanks arranged in single tow. High winds played havoc with this wind-catching tow, but two tugboats managed to keep everything under control for 56-mi. trip.

the river. This scheme was especially satisfactory in view of the delay and cost entailed in cutting up the tanks and moving them by truck. Limited clearances precluded truck hauling without dismantling.

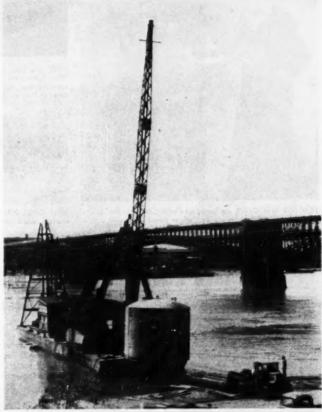
Fifteen of the tanks, 20 ft. dia. and 18 ft. high, were complete with flat steel bottoms and steel dome tops, and easily could be made watertight. The remaining three units, about the same size, were open top. All tanks were moved to the Missouri River bank and tipped over on their sides.

### **Towed in Pairs**

To make a better tow, 14 of the closed tanks were welded together in pairs, bottom to bottom. Then these seven pairs were made up into a tow, handled by two tugboats of Allgire Towing Co. A second tow included the three opentop tanks, rolled on to a barge, with the remaining floater lashed along-side.

Upon arrival at East St. Louis, the double tanks were cut apart and lifted ashore, one by one, by Vollmars' 25-ton floating derrick, which also landed the second tow. Permission was obtained from the local police to move the tanks on low - bed trailers through the streets to the Mepham plant during early morning hours. At the plant each tank was set upright on a prepared concrete base.

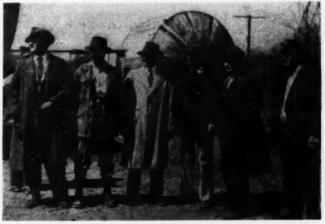
No delays, no trouble, no damage to the tanks—the flotation scheme worked perfectly.



4 UPON ARRIVAL at East St. Louis, tanks are lifted out of water by 25-ton floating derrick. Trips through city streets by low-bed trailer was in traffic-free early morning hours.



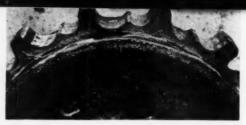
5 ALL'S WELL that ends well. Here tanks reach final resting place on prepared concrete foundations at purchaser's plant.



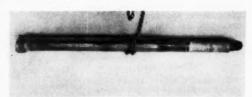
6 HERE ARE MEN responsible for job. They are: JAMES E. VOLLMAR, JR., head of Vollmar Bros. Construction Co.; LANDON C. LODGE, George S. Mepham Corp.; LEWIS C. VOLLMAR and THOMAS E. HARMON of Vollmar Bros.; HARRY HUGHES, Home Insurance Co. (on job just in case); and RAY ALLGIRE, Allgire Towing Co.



TRACTOR SPROCKETS are hard-faced with Colmonoy No. 6, applied by gas welding. When applied as shown here, with simple jig and hot forming, finish grinding is eliminated.



HERE is a badly-worn hot elevator sprocket off an asphalt plant. Worn spots were built up with Colmonoy No. 6 (gas welded) at cost less than half that of new sprocket. Rebuilt part lasted 18 times as long as new sprocket.



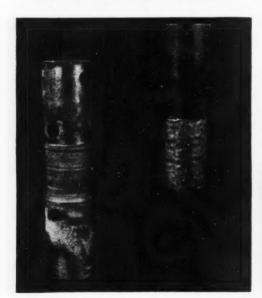
WELL DRILL BIT, hard-faced with Colmonoy No. I, electric arc applied, lasted four times as long as untreated bit.

# Hard-Facing Pays on Many Parts

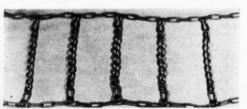
ANOTHER EQUIPMENT MAINTENANCE FEATURE

OFTEN when repairing or building up parts subject to excessive wear, it pays to use a hard-surfacing material. Here are half a dozen maintenance tips submitted by Wall Colmonoy Corp., Detroit, showing actual instances of hard-surface treatment.

Colmonoy, a hard-surfacing material, comes in several types for various applications. Some types are applied with acetylene welding, some by dc. arc welding, some by either method. Experience shows hard surfacing increases wear of parts many fold.



BEFORE AND AFTER views of badly-worn cement conveyor gudgeons built up with Colmonoy No. 6 hard-facing material, applied by gas welding.



TIRE CHAINS, which get lots of abuse on construction work, are hard-faced with Colmonoy No. 6 by one contractor, who reports increasing life of chains four-fold.



FOR REAL TOUGH GOING, Colmonoy Sweat-on Paste, applied by either electric or gas welding, stands up best. Here is a clinker plow blade built up with material.

# World's largest rubber-tire crane swings 45-ton loads on TIMKEN® bearings

BIG construction projects, logging and other operations get an extra lift when this giant Lorain MC-820 Moto-Crane swings into operation. It's said to be the largest two-engined, rubbertire crane ever built, and can be equipped with booms up to 100 feet in length.

To help this huge crane swing heavy loads smoothly and easily, the turntable rollers and swing drums are equipped with Timken<sup>®</sup> tapered roller bearings.

Because of the line contact between the rolls and races, Timken bearings have tremendous load carrying capacity. Yet their true rolling motion and incredibly smooth surface finish enables them to operate freely and frictionlessly. Due to their tapered construction, they carry both radial and thrust loads in any combination.

Made of the finest steel ever developed for tapered roller bearings-Timken fine alloy steel-Timken bearings normally last the life of the machine. For long life and trouble-free performance, see that the trade-mark "Timken" is on the bearings of all the machines you build or buy. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO". This symbol on a product means its earings are the best. LORAIN MC-820 MOTO-CRANE made by Thew Shovel Co., Lorain, Obio, bas turntable rollers and swing drums equipped with Timben bearings for smooth, longlife operation.

### NEW TIMKEN BEARING CUTS RUN-OUT IN HALF!

Until now, the Timken "Zero" bearing has been the last word in bearing accuracy. Now Timken offers industry the "Double-Zero" bearing—tuice as accurate as the "Zero"! Maximum run-out of the new "Double-Zero" bearing is only 75 millionths of an inch—balf the 150 millionths run-out of the "Zero" bearing.

What an opportunity for manufacturers of machines where extreme accuracy is essential! Available in standard single row types, up to 10" O.D. Write for further information.

TIMKEN
TAPERED ROLLER BEARINGS

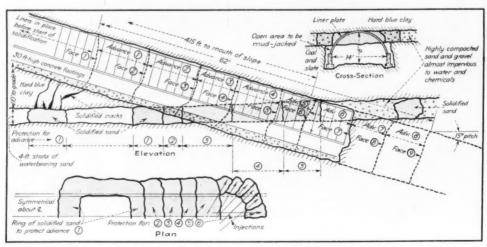


NOT JUST A BALL ONOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL ON AND THRUST - O - LOADS OR ANY COMBINATION



Miners point to hard, impervious mass that was once waterbearing sand as . . .

# **Chemical Treatment Cures Sick Tunnel**



SKETCH OF TUNNEL shows status just before making seventh of eight advances that carried it 62 ft. through wet sand strate.



TUNNEL FACE is slightly undercut to facilitate spotting and driving of injection pipes. Boring is headed toward left; drive-head and chemical hose in foreground.

INJECTION OF CHEMICALS to control subterranean water proved to be a healing shot in the arm for a sick tunnel job. The work had been halted by intersection with a 4-ft. water-bearing sand strata under a 50-ft. hydraulic head, but the tunnel was finally mined through the bad ground after it had been doctored to make it good. Injection pipes, driven fanwise from the heading before each advance, carried the medicine: two chemicals that immediately reacted together to solidify the sand and seal off the water.

The tunnel—14 ft. wide, 8 ft. high, 614 ft. long—was being driven on a 15-deg. down slope for access to a new Alpha (III.) Coal Comine. It was blasted full face through hard blue clay, and the arch roof was supported by Armco steel liner plates resting on 30-in. high concrete walls. The bore had been advanced 375 ft. when it approached a horizontal 4-ft. layer of waterbearing medium-fine sand overlying coal and slate. Top of (Continued on page 70)



ELECTRIC AUGER bores through hard clay to speed setting of injection pipe. In slate or hardened sand, rock drills cut the starter holes.

## GULF QUALITY LUBRICANTS and FUELS help keep equipment on the 1063

Mount Morris Dam Builders, Inc., consisting of 5 leading contractors, is constructing the huge Mount Morris Dam on the Genessee River at Mount Morris, N. Y. Major items of work and material involved include 670,000 yards of earth and rock excavation and 767,000 yards of concrete. Cost, over \$20,000,000. When completed, the dam will be one of the largest in the east.

Photograph through the courtesy of Fred H. Powers, Democrat-Chronicle, Rochester, N. Y.

The Mount Morris Dam is a big construction project. It's the kind of job on which the contractors are not likely to take chances with their equipment. They want sure protection and efficient power to insure top performance and prevent costly mechanical delays.

That's why Mount Morris Dam Builders, Inc. selected Gulf Quality Lubricants and Fuels—on the basis of experience and reputation. And they are getting the kind of lubrication and fuel performance that is required to complete the job on schedule.

Write, wire, or phone your nearest Gulf office today and arrange to use Gulf Quality Lubricants

and Fuels on <u>your</u> next job. They are quickly available to you through 1200 warehouses in 30 states from Maine to New Mexico.

#### Gulf Oil Corporation · Gulf Refining Company

Division Sales Offices: Boston · New York · Philadelphia · Pittsburgh · Atlanta New Orleans · Houston · Louisville · Toledo



you earn MORE

PaH

TRUCK CHANES



FAST TO THE JOBI

Travel one or one
hundred miles, swiftly,
safely, economically. Its travel engine
built for this job, provides more than two
times the power required for hoisting.

52

FAST ON THE JOB!

Here, the upper engine,
ruggedly built for sustained hard service,
takes over. It's the right power
that's geared right for selective line pulls and line
speeds — it's fast on all types of jobs.

55

MORE ON THE HOOK.

Not just a claim, but proved by operators on all kinds of jobs — size for size no P&H Truck Crane has ever been outlifted. This means handling a wider range of jobs with the ability also to tackle those unusual assignments.

More and more busy operators are buying P&H Truck Cranes. (wholly built by P&H, trucks included) because of their unique earning power. Get the full story. Write for literature now.

SIZE FOR SIZE NO PAH TRUCK CRANE HAS EVER BEEN OUTLIFTED

Note These P&R Added Velue

Hydraulic central—a now peak in operat-

Greater stability — with exclusive tension — O W

• Redopendent planstery boom heist -- . All-trolded construction of the construction

PEN SENIOTE CONTROL — with this unit yes can control of functions (even the hamil by electric peak-bacters — from the operator's position limble the cross rule.

P&H

TRUCK GRANES

**HARNISCHFEGER** 



#### GET THROUGH CONCRETE....

FASTER CHEAPER QUIETER

It's a fact . . . nothing drills concrete like a TERMITE Rotary DRILL! Saves you time and money on every job. The secret of the TERMITE lies in its patented action . . , it doesn't cut, it pulverizes! . . , you get more holes per dollar. Bores clean, true and fast because of the near-diamond hardness of the tip and the all-worm feature that carries away the pulverized material. See your dealer or write direct.

#### **4 BIG FEATURES**

- The Termite holds its gauge longer.
- Simple to use, no complicated attachments and no expensive air compressor, the *Termite* fits any ½-in. electric drill.
- No ear-shattering noise, the Termite is quiet.
- Eliminates breakage of concrete . . .
  the Termite's smooth, vibrationless action allows you to drill close to the sides
  and edges of concrete members without
  fracturing the concrete.

Insist on the

#### Concrete Termite

...the patented rotary drill

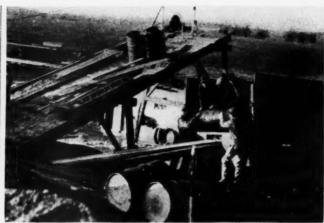
DISTRIBUTORS
AND DEALERS . . . make the Termite
Rotary Drill your
leader for fast
sales and profits!



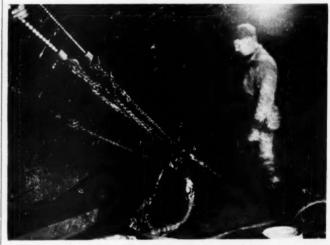
Made only by

#### CONCRETE TERMITE DRILL CO.

2091 Foothill Boulevard PASADENA, CALIFORNIA



GEL-FORMING CHEMICALS—silicate of soda and calcium chloride—are unloaded at tunnel mouth 375 ft. from face.



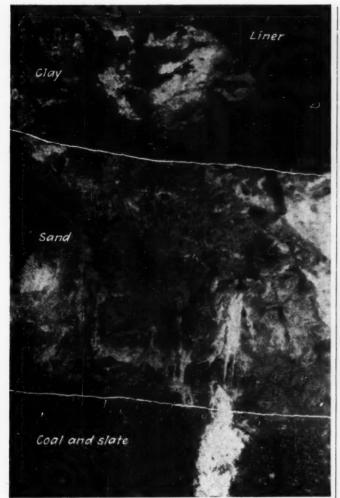
PIPES ARE WITHDRAWN after chemicals are injected into sand zone. Chemical hoses are still coupled to drive-heads.

(Continued from page 67) sand was 3 ft. below the bottom of the face. The strata was 110 ft. below grade and under a 50-ft. head.

Water gushed into the tunnel even before it intersected the wet zone when blasting opened up cracks in the clay above the sand. In an attempt to dewater the sand layers, a 4x8-ft. sump was dug 13 ft. through clay, up slope, behind the cracked section. Pumping proved fruitless, and the Chemical Soil Solidification Co. of Chicago was called in to seal off the troublesome sand area so the tunnel could be driven through it.

The basic system used was the Joosten process—consecutive injections of silicate of soda and calcium chloride into the sand. Upon contact, the two solutions immediately precipitate a silicic acid gel that penetrates the voids and pores of the material to form a sandstone-like mass impervious to water.

At Alpha, the contractor first sealed the leaking cracks by solidifying an oblong ring of the sand zone beneath the area. The ring extended about 12 ft. beyond the tunnel face and permitted the heading to be advanced without flooding. After 8 ft. of tunnel was



SAND STRATA are sandwiched between clay and coal-slate layers. White material is chemical gel that solidified sand and sealed cracks.

mined, another series of injections formed a solidification are ahead of, and knitted into, the original ring. The heading was again advanced 8 ft. and the inject-andmine sequence was repeated six times more until the heading was beyond the dangerous water-bearing section.

The solidifying chemicals were injected into the sand through a fan-like spread of pipes driven from the heading at locations and angles calculated to reach specific areas knitting into previously treated ones. Typical injection pipes were 14-ft. x 1¼-in, hollow round drill rods. They ended in

a pointed and perforated tip in place of a bit, and the upper end was fitted with a hollow driving head that carried a connection for a chemical hose, and had a collar for jackhammer driving.

Pipes were usually driven in pairs (one pipe for injection of each chemical), with 8 in. between pipes and 10 to 18 in. between pairs. There were from 10 to 16 pairs per heading. Hardness of the clay and (while making the later injections) the previously-solidified sand made pipe-driving difficult, so holes were pre-drilled by a separate crew to within 1 or

(Continued on page 72)



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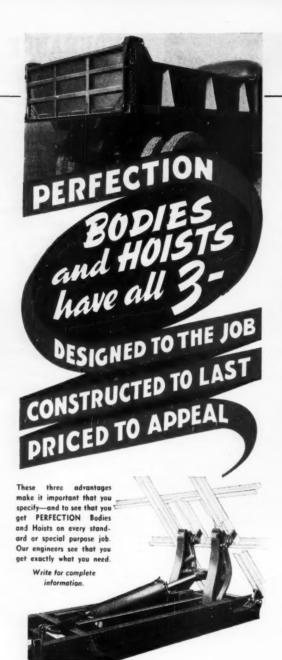
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(Continued from page 71)

2 ft. of the wet zone. Electric augers bored the clay; rock-drills the sandstone. But in each instance they left holes larger than necessary for the injection pipes. Accordingly, after the pipes were placed in the prepared holes they were calked with oakum soaked in the two chemicals to prevent leakage.

The pipes were then driven by an 85-lb. jackhammer until they barely penetrated the water-bearing material. If water flowed from the heads, indicating that pipes and tip perforations were clear, hoses were connected to two airdriven, double-acting piston pumps



DOCTOR who cured ailing tunnel is C. Martin Riedel (right) of Chemical Soil Solidification Co., shown with J. W. Johnson, chief engineer of the Shuler Coal Co.

supplied with chemicals from metered containers. Plugged pipes were jetted clear by a 1/6-in. tube run in the bore.

With the chemical lines hooked up, one pipe of the pair was driven farther into the sand while silicate of soda was pumped through it at 40 to 55 psi. When the point had advanced the desired distance into the wet zone (18 to 36 in., according to the angle), and the necessary chemical dosage had been given (determined by the material's voids), the second pipe was driven and calcium chloride injected. Then, both pipes were withdrawn by chain and 11/2-ton ratchet-hoist or by a 6-ton motordriven, hydraulic double-jack. The procedure was repeated for all other pairs of pipes in the heading. (In some instances both chemicals

THE PERFECTION STEEL BODY CO.

Galion, Ohio, U.S.A.

were injected through the same pipe: silicate of soda being pumped during driving; calcium chloride during withdrawal.)

Two small and one rather heavy (250-gpm) break-throughs near the outer limits of the solidified sand arcs occurred during the last two advances through the wet zone. In this area the strata changed from sand to a thoroughly compacted mixture of sand and gravel that contained large lenses of material having a high percentage of voids. Each break-through was successfully sealed by pushing a pair of injection pipes into the heavily flowing hole, stuffing the opening with sandbags and oakum (both soaked with the chemicals), then pumping in the two chemicals to form the quick-setting gel that blocked off the water.

#### Now In The Clear

The tunnel is now safely through and below the tricky section of wet sand. It took about two months' time, 300 injection pipes, 8,400 gal. of silicate of soda and 5,100 gal. of calcium chloride to advance the heading 62 ft. through the bad ground. But without the chemical treatment tunnel construction might have been halted permanently.

J. W. Johnson, chief engineer of the Shuler Coal Co., Des Moines, was in charge of mining the tunnel at Alpha. C. Martin Riedel, senior partner in Chemical Soil Solidification Co. directed the injection and sealing work.

#### REPRINTS OF Job Office Procedure

IN RESPONSE TO requests from our readers, the series of three articles "It Page to Organize Your Office—Contractor's Job Office Procedure" has been reprinted in limited quantity. These articles were taken from an employee's manual compiled by Johnson, Drake & Piper, Inc., Minneapolis contractors. They have no copies of the manual available for outside distribution, so if you want one or more copies of this useful document, order them from the editor of Construction Methods and Equipment at the following prices, postage prepaid:

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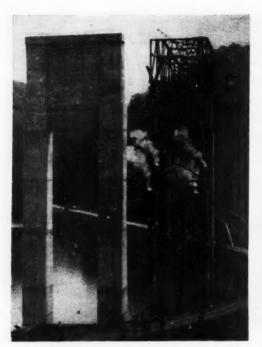
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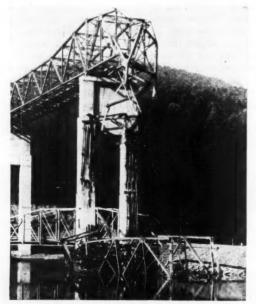




FOUR POTS OF THERMITE are ignited on the collapsed span of the Bluestone River Bridge in futile attempt to drop it into the river.



A SPLIT-SECOND LATER, 3,500 lb. of thermite powder blazes furiously at seven strategic points on hanging truss span but fails to sever it.



AS A LAST RESORT trusses, bracing and floor system are blown apart by ten charges of dynamite totaling 250 lb. Small trees lashed to pier protect it from falling steel.

#### Wrecked Bridge Yields to Blasting After Burning Fails

THERMITE BURNING, ordinarily successful in dismantling steel structures, proved futile in dropping the wrecked span of the Bluestone River bridge in West Virginia. The job was neatly done, however, with 250 lb. of dynamite, placed in ten strategic locations.

As described in the May issue of CONSTRUCTION Methods and Equipment, the central 278-ft. span of the five-span cantilever bridge failed on Mar. 31, during erection. At that time, ten panels of truss had been cantilevered out over one of the piers, and an erection truss was making a closure with the next pier. The outer end of the 240-ft. of trusses dropped into the river, leaving the other end hanging precariously from torn and twisted members extending beyond the supporting pier.

Virginia Bridge Co., contractor on the job, was faced with the problem of removing the wrecked span

without damaging the pier. No attempt was made to salvage the steel, as it could be dropped into the river where it soon will be inundated by storage water behind Bluestone Dam.

In the first attempt at dropping the span, 3,500 lb. of thermite was placed inside brick-lined cupolas or pots built around the bridge members at seven locations. Although the thermite charges generated heat at 6,000 deg. F., they failed to burn the heavy truss members. According to observers at the site, this may have resulted from a combination of causes-the bottoms of some of the thermite pots seemed to burn away before the full burning effect of the thermite was applied to the steel members, and certain members in compression seemed not only to melt, but also to weld together together again as the heat from the thermite was dissipated.

Ten charges of dynamite, totaling 250 lb., were attached to the span, and blew it into the river. Virtually no damage was done to the pier by falling steel, since the concrete columns had been protected with a mat of small trees. Investigations are being conducted by both the West Virginia State Road Department and the Virginia Bridge Co., but no conclusions have been reached to date as to the cause of the failure.

Carbon Monoxide Neutralizer

ANNOUNCEMENT HAS BEEN MADE of a new chemical powder for neutralizing carbon monoxide in tunnels. Developed by the Defense Research Board, Department of National Defense, Ottawa, Canada, its use was revealed by Dr. Morris Katz at a meeting of the American Chemical Society in San Francisco recently.

The new powder contains silver permanganate as the active agent and can be used in gas-mask cannisters or placed in ventilating systems to clean large volumes of air. Differing from chemicals used heretofore in that it is not affected by moisture, it has also been proved much more active than chemicals now in use when carbon monoxide concentrations are very low.



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#### **American Equipment Takes**

A COMBINATION of American supervision and equipment with Mexican workmen is effectively handling the contract for construction of Morelos Dam on the Colorado River between Baja Calif. and Arizona. Designed by the Mexican Ministry of Hydraulic Resources,

the dam is being built for the Mexican government by Morrison-Knudsen de Sonora, S.A. This Mexican subsidiary of the wellknown American contracting firm used twelve Americans efficiently in supervisory positions to direct work of more than 650 skilled



THIS 13-YD. EUCLID bottom-dump truck speeds work on select fill for foundation of Morelos Dam being built by Morrison-Knudsen de Sonora, S.A., for Mexican government.



FORCEFUL WATER SPRAY to wet down fill is obtained by mounting a 4,500-gal, tank on Euclid frame and equipping it with 4-in. Jaeger pump.



WHEN NOT IN USE, 2-yd. Gar-Bro buckets are suspended from timber frame. 11/2-ton trucks that carry these buckets can easily back under them when they are needed.

#### **Mexican Dam in Stride**

and unskilled Mexican construction workers.

Major work at the dam involved excavation, fill with select material wetting down as needed, placing of riprap, and concrete work. These tasks were accomplished by a good combination of American

equipment and Mexican workmen.

Morelos Dam was designed and is being built by the Ministry of Hydraulic Resources of Mexico. Adolfo Orive Alba is the minister and Eligio Esquivel Mendez is district manager. Jose Ramos Magana is resident engineer.

James D. McClary is vice-president and project manager for Morrison-Knudsen de Sonora, S.A. and Ing. A. G. Cadaval is vice-president and chief engineer. Charles S. Bradley is assistant project manager, and Carl Larson is general superintendent.



RIPRAP is hauled in by 10-yd. end-dump Euclid truck. Another bottom-dump truck hauls select fill.



COMPACTION is accomplished by smooth steel rollers—a Mexican innovation that differs from sheepsfoot rollers used commonly in this country.



ANOTHER TIMBER FRAME supports, when not in use, cement tank for transfer of bulk cement from railroad siding to silos at batch plant. This tank has built-in cement pumping equipment.



MEXICAN CARPENTERS use strong-arm method of moving completed form panel sections.

(Continued on page 80)

We were lifting a \$50,000 generator

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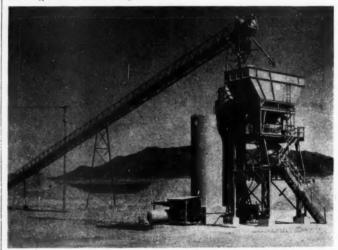


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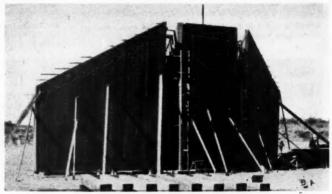
#### MORELOS DAM . . . Continued



TRACTION FOR TRUCKS stockpiling concrete aggregate is provided by steel landing mat of type used in Pacific during war.



CONVEYCO silo and batching system dumping into a Koehring 2-yd. mixer starts concrete cycle.



COMPLICATED FORM for bridge pier abutment is completely assembled in form yard. Workmen in field can look at assembled form in yard and see how it is to go together after it is disassembled and moved to job.



Jack House watches costs go down.



How a
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can cut costs:

New standard Jaeger 125 ft. compressor instead of old standard 160 ft.



3 men here instead of 6 (2 on the frame which holds 6 tampers, 1 man on the wall to handle hose).

On the San Antonio Expressway, Killian-House Company used these 6 backfill tampers in a frame to compact along the walls, reduced their tamping crew 50% and maintained continuous operation not possible where tampers are individually operated. The job, too big for any 105 ft. compressor, was successfully handled with a Jaeger "new standard" Model 125.

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#### Readers' Picture Page

THIS PAGE, which will be a regular feature in each issue, takes the place of the former Photo Contest. Readers are invited to send in photo contributions to this page each month. A minimum of \$5 will be paid for each picture published. Extra bonuses for outstanding shots may bring you \$10, \$15, or \$25.

All pictures must pertain to construction operations and preferably should include equipment. New ideas, clever use of machines and striking and unusual shots are desired subjects.

Send in your job photos to the Photo Editor, Construction Methods and Equipment, 330 W. 42nd St., New York 18, N. Y. Every effort will be made to return unacceptable prints, but their return cannot be guaranteed.

A NAVEL STIFF-LEG METHOD below) of piledriving with suspended leads produced the subject matter for this shot sent in by J. P. Desjardins, piledriving boss for B-H Metal Industries of Montreal, Canada. This picture, which rates a bonus check for \$15, shows a road bridge on Route \$57 near Montibello on the north shore of the Ottawa river. Mr. Desjardins' home is at 71 Pacific Ave., Laval-des-Rapides, Montreal 9, Quebec.



AGAIN A CONTRIBUTOR—and again winning a bonus, this time amounting to \$25—is Glenn Voegelein, project engineer for Lytle-Amis-Green, Lowell, Ore. His photos show a lash-up for two Euclid wagons, made up in the job shop of the combine at O'Sullivan Dam for the Bureau of Reclamation's Columbia Basin project. A Model 25 FTD Euclid tractor hauls the two 13-yd, wagons in tandem, doubling the haul capacity of the tractor. Take a tip from Mr. Voegelein and send in your unusual photos for consideration.

**CONSTRUCTION Methods and Equipment** — September 1949 Page 82

A COMPLACENT BUT FIRM operator of this Lorain back-hoe (below) pushes aside pieces of a dead gas main which he uprooted while digging for a new sewer line in Corpus Christi, Texas. This picture of a construction man's self-sufficiency was offered for consideration by D. H. Dyer of 520 N. Michigan Ave., Chicago, Ill. for which we happily send him a bonus of \$10.





## Arc Welding Cuts Construction Costs 20% on World's Largest Harbor Shed



Fig. 1. Field welding truss sections to fabricate 200-foot span rigid frame, using 200-amp. Lincoln "Shield-Are" Engine Driven Welders. Sections are lined up with a transit and tack welded prior to finish welding.



Fig. 2. All welded rigid frame Harbor Shed at Long Beach, California. Designed by R. D. Sandham under direction of R. R. Shoemaker, Chief Engineer, and R. J. Amar, Port Manager. Steel fabricated and erected by Pacific Iron and Steel Company of Los Angeles.

SIMPLER, faster construction made possible by arc welding, accounts for an estimated 20% saving in structural cost of the Harbor Transit Shed at Long Beach, California. Built entirely with arc welding, this 2,625-ton rigid frame structure was erected in only 90 days with a 32-man erection crew. By eliminating rivets and gusset plates, designers cut the structural weight by more than 7%, creating the world's largest unobstructed single span harbor shed—1,200 feet long, with a 200-foot span and 40 feet high.

The 32 rigid frames used were shop fabricated in 30 working days using flame cut steel plate and standard rolled shapes. Seventy per cent of the arc welding was finished in the shop using fast, simple downhand welding

techniques. Forty-foot sections thus fabricated were then trucked to the erection site for field welding.

Erecting operations were so planned that the 32-man crew could raise and connect the trusses with the I-beams at a rate of 8 frames in a six-hour shift, an erection speed considered impossible with riveted construction. Three 20-ton cranes raised the field-assembled 50-ton all-welded rigid frames, holding them in position while connecting I-beams and trusses by arc welding with 200-amp. Lincoln "Shield-Arc" Engine Driven Welders.

The unique Long Beach Harbor Transit Shed is built to withstand earthquakes. Each rigid frame rests on a 5-inch diameter hardened pin, thus compensating for any light movement or settling that might occur in the harbor area.



Fig. 3. Shop fabricating truss sections, using "Automatic Lincolnweld." Fillet welds are made in single pass at 600 amps, and speed of 24 inches per minute.



Fig. 4. Hip girder connection to base plate. Five-inch diameter horizontal pin allows free movement in case of earthquake or settling in harbor area.



Fig. 5. Welding truss to hip girder. Butt joints are completed with ten passes on flange plate and two passes on web plate.

The above is published by THE LINCOLN ELECTRIC COMPANY in the interests of progress.

Architects and engineers are invited to write on their letterheads to be placed on mailing list for Structural Welding Studies.

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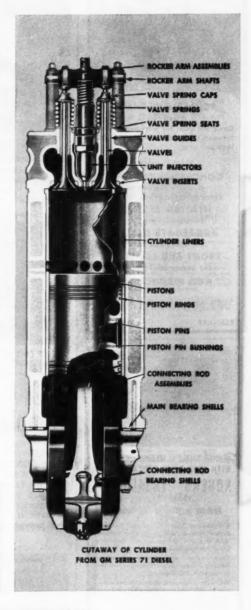
To large contractors, oil drillers, truck or boat fleet operators, this unique feature of GM Diesel design means lower parts inventories and less time out for maintenance.

To the individual owner, it brings a no less important benefit. A *single* inventory of basic parts on the distributor's shelves increases the availability to owners of the *right* part when it is needed.

Maximum parts interchangeability is just one of the many plus values that go with your purchase of General Motors Diesel engines—a good reason why it pays to standardize on GM Series 71 Diesels.

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PERFORMANCE



PUMPING SYSTEM pulls water from North Concho River to add to native caliche, an impervious fill, in construction of the San Angelo Dam at San Angelo, Tex. Average lift of water is 9 ft.—pumped through 11,600 ft. of line and discharged at a rate of 850 gpm.



ONE OF TWO skid-mounted booster pumps assists in lifting water for fill-soaking. Twenty-foot sections of 5-in. aluminum pipe make relocation an easy job. Tank {330-gal. capacity} is also skid-mounted for portability.

#### **Pumping System Soaks Dam Fill**

DAM CONSTRUCTORS DOWN TEXAS WAY have taken a tip from the farmers and their farm irrigation methods. The bothersome problem of adding water to fill material for proper density has been solved successfully with a



FILLING STATIONS are time and distance savers for haul-road sprinkler trucks. Tanks of 1,500-gal. capacity can be filled in 3 min. portable pumping system at the San Angelo Dam, near San Angelo, Tex.

There a combine known as Concho Constructors is handling the third and last stage of the dam construction involving over 11,-000,000 yd. of earthmoving. Spanning the North Concho River, it will serve as a flood control measure to protect San Angelo and the surrounding communities from flash floods, and will provide water storage for irrigation purposes. Contract completion is scheduled for 1,200 working days.

When completed, the embankment spanning the North Concho River will be more than 37,000 ft. long, with a maximum top width of 128 ft., and bottom width of 750 ft. The soil in the borrow areas is so dry that 40 gal. of water is added to each cubic yard to bring



MAXIMUM LIFT is 110 ft. from river level through 17,600 ft. of line. Output at this point is 650 gpm. Native caliche fill has 40 gal. added to each cubic yard to meet requirement of 95 percent density.

it to the density of 95 percent specified by the U. S. Corps of Engineers. Principal impervious fill is native caliche, a porous but adhesive soil.

The pumping system consists of three Gardner-Denver 5-D centrifugal pumps each driven by a 3-cylinder G.M. Series 71 diesel engine. These units are connected by 20-ft. sections of 5-in. aluminum pipe, the first used as a pick-up from the North Concho and the others acting as boosters. Lines can be shortened or lengthened in multiples of 20 ft. and each of the three pumping units, with its own 330-gal. fuel tank, is wheeled or mounted on skids for portability.

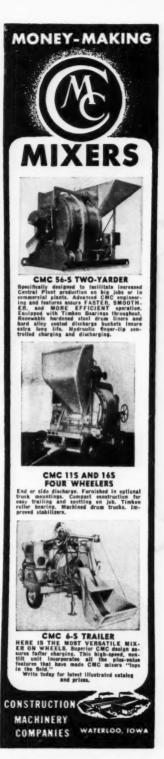
On the average, water is lifted 9 ft. and pumped through 11,600 ft. of line. Even at this distance the outflow is 850 gpm.; sufficient to maintain the placement of fill on a 20,000 yd. per day basis. Most strenuous test for the system was a lift of 110 ft. from river level, through 17,600 ft. of discharge pipe. Despite the lift and friction head, a 650 gpm. flow was delivered.

Another important part the pipeline plays is in the loading of watering trucks. At two points along the line trucks can pull in under standpipes and fill a 1,500-gal. tank in three minutes flat. Not only is considerable loading time saved, but travel is greatly minimized.

#### CASH FOR YOUR JOB PHOTOGRAPHS

EACH MONTH Construction Methods and Equipment purchases several photographs submitted by our readers. Minimum payment for accepted pictures is \$5. Extra bonuses for outstanding shots may bring you \$10, \$15 or \$25. Good, clear glossy prints are desired of job operations, clever applications of equipment, and cost-cutting tips.

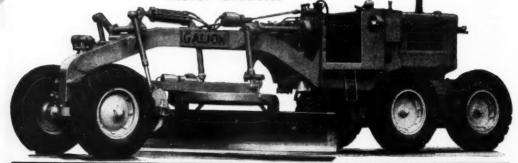
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# Why take less for your money? You need both-

# \* LARGE FRONT TIRES \* HYDRAULIC BOOSTER STEERING

\*Both are Standard Equipment Models 116, 103 and 202 Motor Graders.



#### SAME SIZE TIRES FRONT AND REAR

THE GALION IRON WORKS & MFG. CO., General and Export Offices — Galion, Ohio, U. S. A Cable address: GALIONIRON, Galion, Ohio



When the going is the toughest you really need that confident—"FEEL OF HAND STEERING" while the hydraulic power is doing the "BIG MUSCLE" part of the steering job—

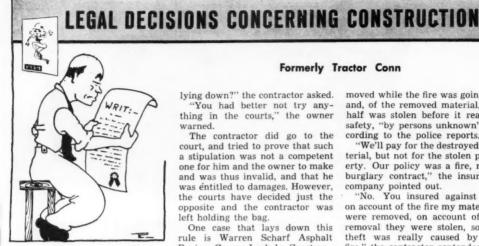
Ask any operator who is using a new GALION. Then ask yourself —

## Why take less for your money,

## HYDRAULIC BOOSTER STEERING MOTOR GRADERS

THE GALION IRON WORKS & MFG CO, General and Export Offices
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Galion, Ohio, U S A



#### The Suspension Clause

THE CONTRACTOR and the owner were completing their contract negotiations when the contractor spotted a disturbing clause in fine print.

"What about this?" he asked.

"Just the usual clause I have in all my contracts," the owner said.
"I've never had to use it, but it does give me a sense of security." the owner assured the contractor.

"It gives you the right to suspend or stop completely all work on 15 days' notice," the contractor

"That's right."

"And it also prohibits me from claiming damages," the contractor pointed out.

"That's right. But can you see me abandoning a partially com-pleted building?" the owner answered

"No, I suppose not," the contractor agreed and reached for his pen.

The contractor was soon on the job and the work was progressing well, when as usual, the unexpected happened. The owner put in an appearance with a long face.

"I'm sorry," he said, but was not. "I believe that our contract calls for 15 days' notice of suspension of work."

The contractor groaned inwardly, but smiled, for he thought he had an ace in the hole.

"It does."

"Well, this is your 15 days' notice, the owner said, and handed the contractor a written paper to that effect.

"You don't think I will take this

#### Formerly Tractor Conn

lying down?" the contractor asked. 'You had better not try anything in the courts," the owner warned.

The contractor did go to the court, and tried to prove that such a stipulation was not a competent one for him and the owner to make and was thus invalid, and that he was entitled to damages. However, the courts have decided just the opposite and the contractor was left holding the bag.

One case that lays down this rule is Warren Scharf Asphalt Paving Co. v. Laclede Construction Co., 111 Fed. 695.

#### The New Jersey Fraud

"THIS IS YOUR COPY of your contract," the contractor said. The owner pocketed his copy of the building contract and departed, but refused to carry out his part of the agreement. The contractor sued for damages, and the case came to trial in due course.

"Our signature to the contract was obtained through the fraud of the contractor, who pretends to be a building contractor," the owner's lawver contended.

And the contractor's lawyer opened not his mouth.

Well-what about it?" the judge demanded.

"That being so, the contractor is bound to prove that there was no fraud. In other words, the burden of proof is on him," the owner's attorney argued.

Then the contractor's attorney was heard from.

"No, the burden of proof of fraud is on the party setting it up," he maintained.

And the New Jersey Court ruled in the contractor's favor in 52 Atlantic, 472.

#### "By Persons Unknown"

THE CONTRACTOR had insured his stock of material on a new job against "loss or destruction by fire," paid the premium, and the policy reposed in his safe deposit box in the bank.

Then a fire visited his construction site, one third of the material was burned, two thirds were removed while the fire was going on, and, of the removed material, one half was stolen before it reached safety, "by persons unknown" according to the police reports.

"We'll pay for the destroyed material, but not for the stolen property. Our policy was a fire, not a burglary contract," the insurance company pointed out.

"No. You insured against fire, on account of the fire my materials were removed, on account of the removal they were stolen, so the theft was really caused by the fire," the contractor contended.

On this point the Illinois, Louisiana, Maine, Pennsylvania and Federal Courts have ruled in favor of the contractor on the ground that the fire was the "proximate cause" of the loss.

#### The Freight Payment

A HAD SOLD a shipment of building material to B, and consigned the shipment to B in the regular way. Before the shipment arrived, B sold it to C, the railway delivered the shipment to C who paid the freight, took delivery, and used the building material.

Then, one fine morning, the freight agent called up, and notified C that, through an error, there had been an undercharge of \$50 on the freight.

Well, it's only proper the railroad should suffer once in a while," C told him.

"We're not going to suffer-it's up to you to pay," the freight agent declared

"The shipment was consigned from A to B, and if you can collect from anybody, it's from them. You certainly have no case against me, when I wasn't named on the bill of lading nor known in the transaction," C maintained.

The railroad company sued, however, and the Supreme Court of Minnesota in a case reported in 203 N. W. 618, ruled that C was liable for the undercharge.

"C was the owner of the material. If he had been the named consignee, his liability would not be questioned. In all but the name he was the consignee," said the Court.

## **CONTRACTORS**

## BUY DODGE -save mone

#### SAVE . . . with these many money-saving features

ENGINES . . . of famous Dodge L-head design save gas, oil, service expense. Full-pressure lubrication, full-length cylinder cooling, and replaceable prefitted main bearings reduce upkeep, prolong life.

CHASSIS . . . Super-friction clutches, with extra large frictional area; rugged 3-, 4- and 5-speed transmissions; full-floating, hypoid rear axles give better performance, insure longer life. Cross-type steering permits sharper turning, easier handling. Cyclebonded brake linings (no rivets) insure safer stops, prolong lining wear.

CABS... Adjustable "Air-O-Ride" seats. Roomy, wide-vision "Pilot-House" cabs, with rear quarter windows, extra-wide seats and "All-Weather" yentilation, insure maximum vision, comfort and safety.







You save money when you buy Dodge "Job-Rated" trucks!

There are two reasons for this:

- 1. Your truck has more money-saving features than any other make of truck built. Many of these are exclusive Dodge features.
- 2. Your "Job-Rated" truck is built to fit its job. And trucks that fit the job save on operating costs. They last longer!

Read (at left) a partial list of Dodge truck features that are important to you. Then-see your Dodge dealer

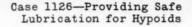
for all the reasons why a Dodge "Job-Rated" truck (priced with the lowest) is the best truck investment you can make.

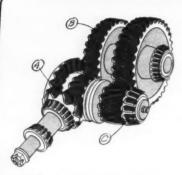


For the good of your business—

September 1949 - CONSTRUCTION Methods and Equipment - Page 91

#### STANDARD ENGINEER'S CASE FILE





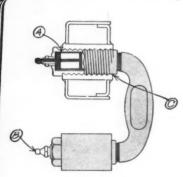
HYPOID-HELICAL, DOUBLE-REDUCTION DRIVE

A commercial transfer truck with RPM Multi-Service Gear Lubricant in its hypoid gears, hauled 10-ton average loads for 165,000 miles without the differential being touched. The truck is still in use every day and the gears are quiet and show no noticeable wear. Recommended for all hypoid gears. Made in four grades: SAE 75, 80, 90, and 140.

- A. Resists rubbing action of hypoid gear teeth . . . compound reacts chemically with metal and forms protective lubricating coating.
- B. Resists extreme temperatures and pressures . . . highly oxidation resistant.
- C. Extremely stable will not separate . . . provides tough lubricating film on integral bearings and other parts.

Inhibitors in RPM Multi-Service Gear Lubricant resist rusting of parts and prevent foaming.

#### Case 1128—Reducing Chassis Bearing Wear



U-TYPE SPRING SHACKLE

Replacement of shackle bearings, kingpins, fifth wheel plates, etc., on a fleet of trucks and busses was reduced materially by regular lubrication with RPM Chassis Grease T-B. Recommended for all chassis lubrication in any operation. Comes in 3 grades, Light, Medium, Heavy, to meet all climatic conditions.

- A. Resists shock loads . . . effective anti-wear ingredient assures cushioning film between parts.
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- C. Forms protective seal at outside edges of bearings — keeps out dust; grit and water.

Extremely stable, RPM Chassis Grease T-B will not change in structure while in use or in storage.

For additional information and the name of your nearest Distributor, write

#### STANDARD OIL COMPANY OF CALIFORNIA

225 Bush Street, San Francisco 20, California

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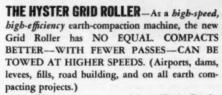
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# another New Tractor Tool Hyster Tractor Tool





TOWING WINCHES



As a Bituminous Pavement Salvage Tool-Breaks up old road mix or black top pavements, compacts subgrades, compacts fills. A cost-cutting machine for every city, county or state.

For 20 years Hyster has been building Tractor Tools for Greater Work Production. For 20 years "Caterpillar" distributors have sold them.

The current line of 29 tractor tools includes towing winches, yarders, donkeys, cranes, logging arches, sulkies, Hystaway (combining clamshell, dragline, back hoe and crane)...and the new Hyster Grid Roller. Contact your "Caterpillar" distributor. Write for catalogs.



HYSTAWAY BACK HOE

#### STER COMPANY



2921 N. E. Clackamas St. . . Portland 8, Oregon 1821 North Adams Street . . . Peoria 1. Illinois





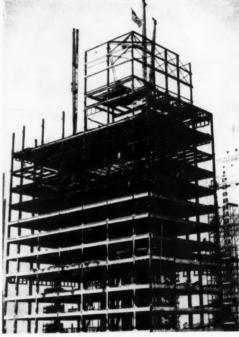
FOUR-LEVEL INTERSECTION is built to solve Los Angeles traffic problem. Structure is at Cloverleaf where Hollywood, Arroyo Seco, Santa Ana and Harbor freeways meet—Wide World photo



LARGEST TRUCK TO ENTER FRANCE is this 58,000-lb. Mack unithere shown being swung aboard U. S. Line's "American Inventor." Truck, purchased through Economic Cooperation Administration by Electricite de France for quarry haulage in France's hydroelectric development program, is powered by 275-hp. diesel engine and will carry a 30-ton payload.

CONSTRUCTION Methods and Equipment — September 1949
Page 94

ANGLO-AMERICAN COOPERATION functions, as officers of New York Building Trades Employers' Association (below), an organization of 1,000 general and subcontractors, greets fellow contractors of 17-man British building team studying American construction technique at luncheon given by B.T.E.A. in its New York City club rooms at 2 Park Ave. Standing third from right is Peter W. Eller, board chairman of B.T.E.A., who faces group of five British contractors.



TOPPING OUT OF STEELWORK for 36-story 100 Park Ave. office building, New York City, is signalized by flag raising ceremony July 26, five months after steel erection was started March I. General contractor for new \$20,000,000 structure with 10,200,000 cu.ft. of space on site of famous old Murray Hill Hotel is George A. Fuller Co. Building is being readied for occupancy in December of this year.



CP High Frequency Electric Vibrators knocking down and compacting mass concrete.

CP-325 Pneumatic Vibrator

placing concrete around rein-

forcing steel.



### JUST THE RIGHT VIBRATOR

for every concrete job

There are seven different models of CP Vibratorsincluding the new CP-5190 High Frequency model for low-slump concrete specified on current dam projects. From this complete line the contractor can select the right type and size for a specific job.

There are one-man pneumatic and high frequency electric, small diameter models for reinforced concrete walls and columns, etc., and one-man and Write for full information.

two-man pneumatic and high frequency electric vibrators for mass concrete.

Latest in the CP line is the light-weight, portable CP-220 High Frequency Electric Vibrator for concretes of 2" slump and over; for walls, columns, floor and roof slabs; and for precast piles and other similar products. Two of these vibrators can be powered by a CP-2KW Gasoline-driven Generator.



AIR COMPRESSORS . ELECTRIC TOOLS . PNEUMATIC TOOLS . DIESEL ENGINES HYDRAULIC TOOLS . VACUUM PUMPS . AVIATION ACCESSORIES





Center — A Lorain Moto-Crane erects steel for east portal of diversion tunnel.

Lower Left — A Lorain-820 crane hoisting concrete buckets on one of the dam structures.

Downsville Dam, in the foothills of the Catskills, is part of a current \$52,000,000

project so New York's millions will have more water "on tap."
The \$13,000,000 Downsville Dam is being done by Walsh Constr. Co.
(Davenport, Ia. and New York) and B. Perini & Sons (Framingham, Mass.).
For years both of these names have been associated with many of the nation's biggest jobs . . . and where they've gone, so have Lorains.
Between them they've purchased 49 Lorains — 25 for Walsh, 24 for Perini.
Such proof of owner satisfaction is repeated again and again with contractors — large and small — all over the nation. Find out why successful contractors, who once they experience Lorain performance, keep repeating on Lorains.

Just ask your nearest Thew-Lorain distributor for facts, figures and proof!

THE THEW SHOVEL CO., LORAIN, OHIO



SHOVELS . CRANES . DRAGLINES . CLAMSHELLS . HOES . MOTO-CRANES

#### Present and Accounted For... A PAGE OF PERSONALITIES



FORD KURTZ has been named vice-president in charge of engineering for The J. G. White Engineering Corp. of New York City. Since 1940, he has served as engineering manager and chief hydraulic engineer, specializing in hydro-electric plants and water supply.



NEW PRESIDENT of Merritt-Chapman & Scott Corp., New York contracting and salvage firm is REAR ADMIRAL CARL H. COTTER, (CEC) U.S.N. retired, wartime deputy-commander of Navy construction bettalions (Seabees) and director of the Pacific Division of Bureau of Yards and Docks.



HAROLD F. HESS has been appointed executive secretary of Construction Industries Association (Manufacturers Division of American Road Builders' Association) with headquarters in the Field Building in Chicago. Past experience includes 20 years' with Chicago Association of Commerce.



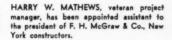
MAJ. GEN. HUGH J. CASEY, until recently chief engineer of Army's Far Eastern Command in Japan, has been designated to serve as division engineer of Corps of Engineers Ohio River Division. He has served with Corps of Engineers since his graduation in 1918 from U. S. Military Academy. In 1941, he went to Philippines at request of General MacArthur for duty as engineer of United States Forces in Far East. Later he was designated Chief Engineer Far Eastern Command.



PETER W. ELLER recently resigned from the Thompson-Starrett Co., Inc., New York contractors, is new Chairman of the Board of Governors of Building Trades Employers' Association of New York. From Thompson-Starrett Co., he received an engrossed scroll in testimony of his "outstanding contribution to the corporation and to the construction industry." Photo shows Mr. Eller (right) receiving scroll from Joseph D. McGoldrick (left). Gen. Donald B. Adams (center) succeeds Mr. Eller, Thompson-Starrett president.

September 1949 — CONSTRUCTION Methods and Equipment—Page 97

J. S. BRIGHT, deputy commissioner, U. S. Bureau of Public Roads, retired after 32 years of service that covered development of federal-aid system of primary roads.

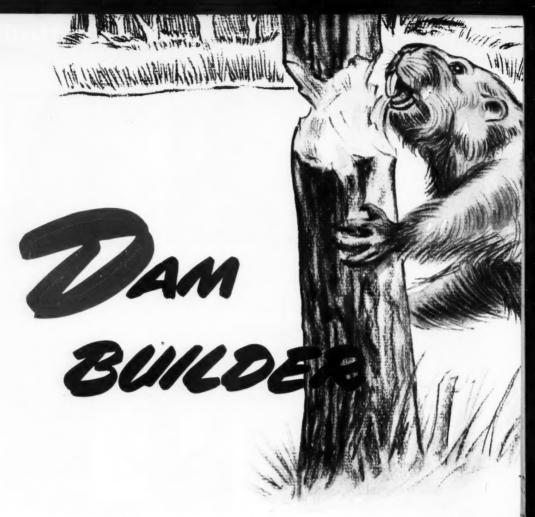


URBAN D. GOSSELIN, formerly assistant to the president, has been elected vice-president of F. H. McGraw & Co., New York constructors.









Matchless ability to hang on to a load and put dirt where you want it fast—that's the kind of performance you get from International Diesel Crawlers on any earthmoving job. Built to outperform, to dig in and do, with diesel power that exceeds today's exacting requirements!

Quick to get to work; with in-built, all-weather starting—and quick to do the work; with 8 speeds ahead, 8 in reverse and finger-tip speed and steering control— International TD-24 turns in record after record of unbeatable work performance.

On dams for soil conservation as well as the great flood-control and hydropower earthworks, this modern, diesel crawler is the tractor to use for all your tough jobs. Contact your International Industrial Power Distributor for TD-24's now.

INTERNATIONAL HARVESTER COMPANY
CHICAGO

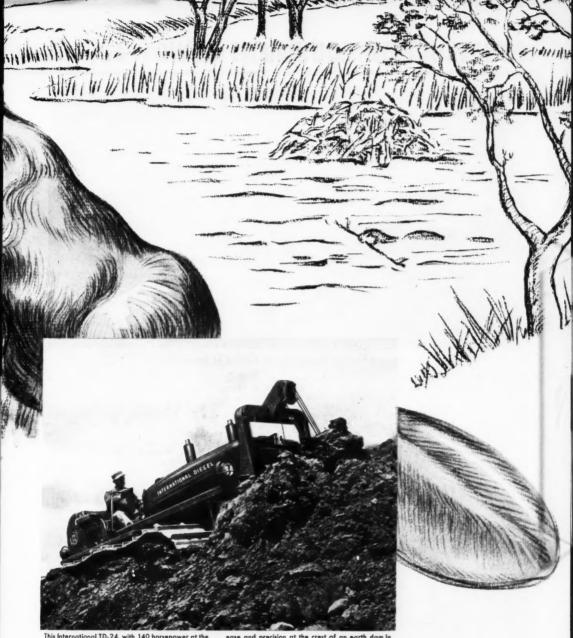


CRAWLER TRACTORS . WHEEL TRACTORS . DIESEL ENGINES . POWER UNITS









This International TD-24, with 140 horsepower at the drawbar, delivers a bladeful of heavy clay with

ease and precision at the crest of an earth dam in Illinois. Increase your work capacity with a TD-24.



INTERNATIONAL HARVESTER

## INTERNATIONAL INDUSTRIAL POWER

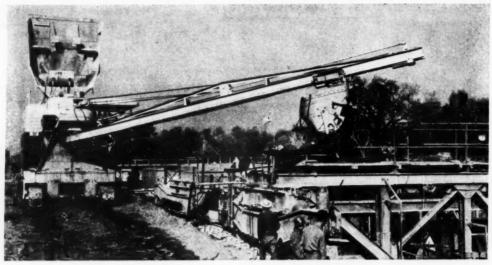






#### CONSTRUCTION EQUIPMENT NEWS . . A Preview of

By MELVIN DEAN, Equipment Editor



Hydraulic Bucket Permits Precise Control of Dumping

AN IMPORTANT NEW DEVELOPMENT, is the Rex hydraulically-controlled dumping bucket for use with the Rex Paving machines. This bucket features positive control over all dumping and spreading operations. Hydraulic control of the undercut pivoted-type bucket gate permits it to be completely opened when necessary to dump a full load; or it can be partially opened for spot placement of smaller amounts of concrete. This feature of partial opening permits the bucket to be

used for direct pours into narrow forms and openings—such as retaining walls, footings, culverts, and Pump-crete hoppers. All operations of the Rex hydraulic bucket are controlled by a single lever. Moving this lever vertically controls the gate action; operating it horizontally controls the bucket travel. Both operations can be performed simultaneously with one hand, leaving the other hand free to operate boom swing of the paver.—Chain Belt Co., 1664 W. Bruce St., Milwaukee 4, Wis.



OVERSHOT LOADER—Converts crawler-type tractors into high-speed loading units. Designed as a mucker for tunnel work, the Austin loader can be used for stockpiling, quarry operations, snow removal, and other heavy-duty loading work. Mechanically operated, one lever provides complete control of all operations. Unit is made in three sizes—the 6-C has a 1½-yd bucket; the 7-C, 2½-yd. bucket; and 8-C, a 4-yd. bucket. Necessary clearances are 17 ft. 9 in., 18 ft. 9 in., and 21 ft. 10 in. Overall widths of the three models are 6, 6, and 7 ft., respectively.—John Austin, Inc., Longmont, Colo.



SOIL-COMPACTOR—Grid roller consists of two 5-ft.-dia. wheels attached to frame. Grid consists of 1½-in. round bars forming 3½-in.square openings. Closely spaced high-pressure points surrounded by confined low-pressure areas result in high degree of compaction; minimum shifting of material. Unit can also be used for salvaging and maintaining bituminous pavements. Counterweighted box when filled with wet sand has a weight of 20,000 lb. Cleaners, for use in clay or loam soils, are equipped with cast teeth which mesh on the inside periphery.—Hyster Co., 2921 N. E. Clackamus, Portland 8, Ore.

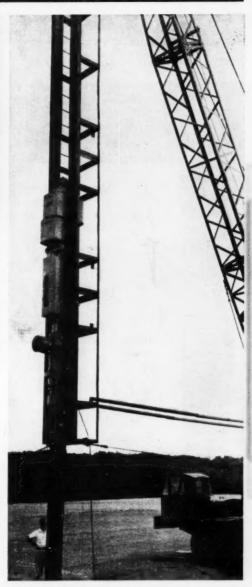
#### New Machinery, Tools and Equipment That Will Help You on the Job



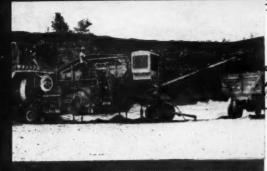
DRIVER FOR FENCE POSTS—Power-driven fence-post driver can be mounted on truck, Jeep, or small trailer. The hammer on the Jordan post driver weighs 100 lb. and provides a free drop of 80 in. It can be used to drive posts up to 8 ft. in length with only a few blows. And, in the case of posts for snow fences, it can be used even after frost has set in the ground. The Jordan post driver is powered by a 1-cylinder gasoline engine.—Henrici Laundry Machinery Co., Henrici St., Mattapan Station, Boston 26, Mass.



TIRE REMOVER—Hydraulic unit is an aid in changing the large tires used on heavy-duty construction equipment. The hydraulic tire remover consists of a 19-in.-long ram assembly weighing 25 lb., together with a pump and hose which provides the hydraulic pressure. The pump and hose weigh 16 lb. The unit works on both front and back side of rim, making it possible to loosen damaged tires from rim to effect quick changes on the job. Under actual test conditions, the tire remover has exerted 18,000-lb. pressures to break bead loose.—The Goodyear Tire & Rubber Co., Akron, Ohio.



DIESEL PILE HAMMER—One-man-operated, entirely self-contained diesel pile hammer requires no auxiliary equipment—such as steam boilers or air compressors—to maintain pressure. It is 15½ ft. long, has a 20-in. dia., and weighs 11,000 lb. Despite compact size and light weight, it delivers driving energy at rate of 16,000 ft./lb. per stroke, and strikes 84 times per min. Weight of striking parts is 5,400 lb.; length of stroke, 4 ft. Hammer fits in standard 20-in. leads and will idle without stalling. Force of blow can be varied from zero to full power.—Syntron Co., 328 Lexington Ave., Homer City, Pa.



them to the pality and that mean blg capacity, ages of a real min count majoritanance. Operators, which is a real majoritanance of 110 mins per hour, crushing to 54.", and the second 110 mins per hour, crushing to 54.", and the second 110 mins per hour, crushing to 54.", and the second 110 mins per hour, crushing to 54. The second 110 mins per hour per















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## OLD RIDGE ROAD - "She wint what she used to be..."

She's a better road today, and built at lower cost ... because modern aggregate producing and bituminous mixing equipment is QUALITY-BUILT to meet today's rigid specifications with more tons per hour at lower cost per ton. And in quality construction, Cedarapids leads the field! Cedarapids quality means consistent high-volume output ... machines that slug away day after day, with less downtime for repairs and maintenance ... giving you the steady "grind" that keeps other equipment on the job at full efficiency. Cedarapids quality means lower labor costs ..., faster, easier operation ... more net profit in your pocket. On all your aggregate producing or bituminous mixing jobs, insist on Cedarapids quality ... be sure to BUY THE BEST—BUY CEDARAPIDS.

### THE IOWA LINE

of Material Handling Equipment Includes:

ROCK AND GRAVEL CRUSHERS
BELT CONVEYORS • STEEL BINS
BUCKET ELEVATORS

VIBRATOR AND REVOLVING SCREENS UNITIZED ROCK AND GRAVEL PLANTS

FEEDERS • TRAPS
PORTABLE POWER CONVEYORS

PORTABLE STONE AND GRAVEL PLANTS
REDUCTION CRUSHERS
BATCH TYPE AND VOLUMETRIC TYPE

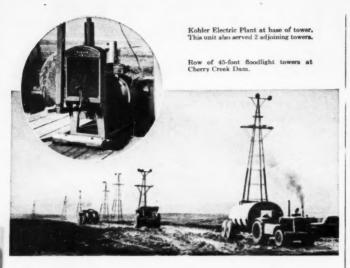
ASPHALT PLANTS
HAMMERMILLS
DRAG SCRAPER TANKS

DRAG SCRAPER TANKS
WASHING PLANTS

SOIL COMPACTION UNITS STEEL TRUCKS AND TRAILERS KUBIT IMPACT BREAKERS

IOWA MAMUFACTURING COMPANY.

Coder Repids, Jowe, U.S.A.

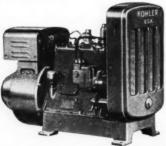


### Skid-mounted floodlight towers at Cherry Creek Dam powered by

## KOHLER Electric Plants



Model 350M21-K7, 350watts, 115volt AC. Manual control. Length 17%, width 11%, height 16%.



Twelve skid-mounted lighting towers floodlighted the night shift at Cherry Creek Dam, the main purpose of which is to prevent flash floods in the city of Denver. The towers were skidded to the center line of the dam at night and moved to one side during the day. Kohler Electric Plants supplied the current for individual towers or groups of two or more.

This is but one of countless examples of the steady, reliable service which Kohler Electric Plants provide for major construction projects throughout the nation and in many other parts of the world.

Stand-by protection is another vitally important service provided by Kohler Electric Plants. In industrial plants, municipal buildings, stores, schools, hospitals, theatres, homes and farms, they safeguard life and property by assuring uninterrupted operation of electrical equipment when storms or accidents cause failure of central station service.

Sizes range from 350 watts to 10KW including two new portable plants, one rated 350 watts, 115 volts weighing 70 pounds and another 500 watts, 6-12 volt battery charging weighing 77 pounds. Because of their light weight and small dimensions, both models have many uses in the construction market. Write for illustrated folder E-10, Kohler Co., Kohler, Wisconsin.

Model 3A21, 3KW, 115 volt AC. Length 41°, width 16°, height 27¼°.

## KOHLER OF KOHLER

PLUMBING FIXTURES . HEATING EQUIPMENT . ELECTRIC PLANTS



TWO-MAN POWERED CHAIN SAW
—Latest addition to Timberhog line
of portable power saws is a 36-in.
two-man saw powered by a 4.2-hp.
gasoline engine. Compact design and
the use of strong die-cast aluminum
parts result in light weight—saw,
complete with guide bar, chain,
guard, and helper's end, weighs 65 lb.
A diaphragm-type carburetor enables engine to operate in any position without swivelling of blade.
—Reed-Prentice Corp., Dept. H-20A,
Worcester 4. Mass.

SPRAY FINISH FOR METAL HOMES—New products announced for exterior finishing of prefabricated metal homes include a two-coat sand finish, spot glaze, and a metal-roof coating. Prefab Exterior Sand-Finish System is used to produce a sand finish or stucco effect on walls, and is designed for spray application in the field over a shop coat of special zinc-chromate primer.—The Arco Co., 7301 Bessemer Ave., Cleveland 4, Ohio.

WIRE-ROPE SWIVEL — Wire-rope swivel has double roller bearings and will turn under full load. Features include combining thrust and radial roller bearings; completely streamlined bodies; heavy load capacity in relation to size; permanent lubrication; and replaceable parts. Available in five sizes for ½, ¾, ¾, and 1½-in. wire-rope, these swivels can be had with four types of ends: eye bolt, hook bolt, integral eye, or clevis.—Flexo Machines Co., 456 N. Aberdeen St., Chicago 22, Ill.



STREAMLINED ¼-IN. DRILLS—Streamlined ¼-in. utility drills are available in three new models. Model 150 is equipped with a Jacobs 1-B geared chuck; Model 160, with Jacobs Hex-Key chuck; and the 170, with a keyless chuck. Capacities are rated at ¼ in. in metals, and ½ in. in wood. The drill has a universal 115-v. ac/dc motor, a protected switch, and is equipped with 8 ft. of rubber-covered cord. — Cummins Portable Tools, 4740 N. Ravenswood Ave., Chicago 40, III.



THREADER HANDLES 4IN. PIPE
—Fast working speeds, automatic chucking, low initial cost, better, cleaner threads, and a reduction in maintenance expense are among the operating benefits claimed for the Thread-O-Matic 44-in. pipe-threading machine. Powered by a 3-hp. electric motor, it will handle pipe with ½ to 4-in. diameters.—Quijada Tool Co., 5474 Alhambra Ave., Los Angeles, Calif.

SUPERCHARGED DIESEL ENGINE—Improved high-speed supercharged diesel develops 300 hp. at 2,100 rpm. Model NHRS features reduced fuel consumption, new fuel pump which is 56 percent smaller and 65 percent lighter than previous models, fully counter-balanced crankshaft, improved piston design, and improved tubular-type lubricating oil cooler.—Cummins Engine Co., Inc., Columbus, Ind.



PACKLESS EXPANSION JOINT-The Corruflex packless expansion joint is designed to absorb expansion and contraction due to temperature changes in steam, liquid, and gaspipe lines. Compact design permits its use in trenches, tunnels, or other cramped quarters. The Corruflex joint is available in sizes from 3 to 24 in., single or multiple corrugation, with or without self-equalizing rings, single or double units, and with either flanged or welded ends. It is supplied in copper, stainless steel, or special alloys, and with internal sleeves, if required. The traverse of the joint ranges from fractions of an inch to 15 in.-American District Steam Co., North Tonawanda, N. Y.



## ON-THE-JOB -Performance is what counts!

When you're keeping a hole dry or holding a river back, priming speed, efficiency and dependability of your pump means everything.

Gorman-Rupp self-priming centrifugal pumps can help you complete your contracts on time and at a greater profit. They challenge any contractors' pump, size for size, to equal their all around performance.

We invite you to give these new Gorman-Rupp pumps an ON-THE-JOB test for your own satisfaction.

We back our claims with a money back guarantee.

Made in all sizes: 7M - 10M - 15M 20M - 40M - 90M - 125M

Ask for the new Contractors' Bulletin No. 8CP-11



TWIN OXYACETYLENE HOSE—Twin oxyacetylene hose has two lengths of hose, one red and one green, joined by a thin strip of rubber. The Duo-Weld hose is made in 50-, 25-, and 12½-ft. lengths, and in a stock diameter of ¼ in. The hose is separated approximately 18 in. from each end and is secured with a metal ferrule at the separation point. The hose can be stripped into separate lengths, if desired.—The B. F. Goodrich Co., Akron, Ohio.



VARIABLE - WEIGHT TANDEM ROLLERS—Variable-weight tandem rollers in three sizes are powered either by gasoline or diesel engines. Model KT-14 has a range from 5 to 7 tons; Model KT-19, from 8 to 12 tons; and the KT-20, from 10 to 14 tons. A gear-type oil pump supplies the low-pressure hydraulic steering

system; while two high-speed low-torque clutches permit reversing the roller without shifting gears. A single-unit engine transmission and bevel-gear final drive provide a simplified, compact power train. A self-energizing hand-operated scarifier is available as optional equipment.—The Buffalo-Springfield Roller Co., Springfield, Ohio.



END-DISCHARGE MIXER—Tilting concrete mixer, end-discharge type, has a capacity of 3½ ft. Powered by a Model 9R6 Briggs & Stratton engine, it is driven by a heavy roller chain. Two supporting legs provide a stabilizing 4-point suspension. It is mounted on disk wheels equipped with Timken bearings and 5.50x16 tires.—Muller Machinery Co., Inc., Metuchen, N. J.



MIDGET AIR HOIST-A midget single-drum utility hoist is ideal for a variety of hoisting, skidding and hauling jobs. The BU hoist will lift a 600-lb load at 50 fpm. Heavier loads may be handled by the use of proper sheave blocks. Power is supplied by a reversible 4-cylinder radial piston-type air motor. A wide band-type brake gives positive holding power, while the reversible motor permits lowering the load under power. A clutch lever disengages the drum for quick pulling out of the cable. The BU hoist is 181/2 in. long, 10¾ in. wide, 11¾ in. high, and weighs 72 lb.-Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.

# Parmanco HI-SPEED HORIZONTAL DRILLS



## THIS UNITIS DELIVERING 6-inch shot-holes READY FOR LOADING

## at better than A FOOT A MINUTE!!

The new Parmanco Hi-Speed Horizontal Drill is completely redesigned around a 40 h. p. engine with four drilling speeds which, in field tests, has cut one-third off the footage drilling time—a cost-per-drilling-foot saving that we are passing on to the strip mine operator and contractor at no increase in our price. In addition, the drill is equipped with a starter and generator, dual type front wheels, truck type rear axle with mechanical brakes and a traction drive with both forward and reverse.

For both Mines and Construction

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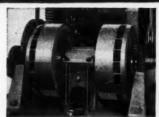
WITH P&H MAGNETORQUE\*

With swing taking about 70% of the average digging cycle, figure what the P&H Magnetorque means to you in bigger production. With 20% faster swing, you can make 5 complete digging cycles to 4 on other machines.

Smoothness means easier operation — velvety starts and stops — far less strain on machinery and structural members. There's all the difference in the world between conventional swing mechanism and the P&H Magnetorque. If you don't have the facts, it's to your advantage to get them.

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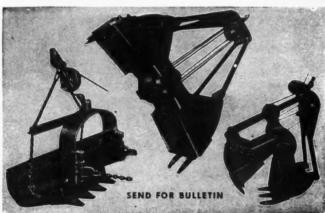




The P&H Magnetorque unit eliminates the ordinary swing assembly and all its troubles — transmits power electro-magnetically without friction, without mechanical wear. The Magnetorque lasts the life of the machine, Write for Bulletin X-104.

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Count on longer life and more efficient service...due to Wellman original welded rolled steel construction. You get the maximum digging power, and exceptional strength—without excessive weight!

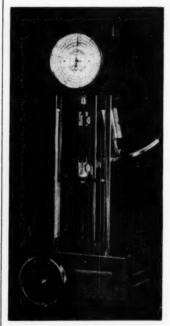
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THE WELLMAN ENGINEERING COMPANY
7017 CENTRAL AVENUE . CLEVELAND 4, OHIO

DISTANCE-MEASURING DEVICE

—Rapid, accurate linear measure-

ments can be made by one man using the Rolatape. This device features a wheel with a fixed measuring tape recessed between two rubber rims. In operation, the back edge of wheel is placed at the starting point, and the wheel rolled along until its front edge reaches the destination. There is nothing to drag, wind, unwind, or peg down. The telescoping handle shortens to 20 in.—Co-Jay Corp., Los Angeles, Calif.



LOW-RANGE TESTING EQUIP-MENT — Hand-operated, low-range universal testing machine has a 100-lb. capacity. It will handle specimens in tensile, compressive, transverse, and shear tests. Several types of grips are available for special purposes and materials. Indicator is designed to remain at peak load after specimen breaks. The unit is 40-in. tall, weighs 85 lb., and is hand-operated through a worm-and-gear drive.—W. C. Dillon & Co., Inc., 5410 W. Harrison St., Chicago 44, Ill.

CALCIUM CHLORIDE IN PELLETS

—Large-scale production of calcium chloride in pellet form is announced by Dow. The new pellets are an anhydrous formulation (96 percent) in buckshot size. Their high analysis is said to make them more efficient, more free flowing, and more easily stored. The pellets are packed in 100-lb. moisture-proof bags.—Dow Chemical Co., Dowflake Sales Division, Midland, Mich.

SAFETY GOGGLES—Safety spectacles feature a one-piece Optilite plastic lens. Quick detachable temples may be instantly attached to the outside edge of the lens, making it possible for the wearer to adjust the temples to the position desired. The Saf-I-Spec has an integral molded sweat-bar. Available in crystal clear or anti-glare green, the Saf-I-Spec can be worn over regular glasses.—United States Safety Service Co., 1215 McGee, Kansas City 6, Mo.



POWER CART-Designed to replace hand-pushed concrete carts and wheelbarrows, cart powered by fourcycle gasoline engine climbs 20 percent grades with 2,000-lb. load. Carries 9 cu.ft. of concrete and is steered by tiller which turns rear wheel through 180-deg. arc, enabling machine to turn around on a 4-ft. radius. Speed is controlled by foot throttle. Speeds of 8-10 mph. are attained through chain drive. Weight empty is 685 lb. with load rating of 2,000 lb. Loading height is 31 in.; length, 85 in., and width 391/2 in. Will side dump on standard 5-ft. runways. -Gar-Bro Mfg. Co., 2416 E. 16th St., Los Angeles, Calif.

STEEL-STUD SYSTEM—The Clipgrip steel stud system is an all-metal system for supporting and securely fastening—by mechanical devices—building materials used for wall construction. It is suitable for either dry wall or plastered wall construction for all non-bearing walls and partitions and is fire-safe, economical, and salvageable. Clipgrips permit erection of a dry wall which is free from joint cracks and is void of nail marks.—Neslo Mfg. Corp., 516 Fifth Ave., New York 18, N. Y.

GENERAL-PURPOSE ELECTRODE

Electrode is recommended for use on high-alloy and high-carbon steels. Electrode No. 252 has a tensile strength ranging from 85,000 to 95,000 psi. and features heat, corrosion, and wear resistance. Yield strength is 50,000 to 60,000 psi.; elongation 35 to 45 percent; reduction of area is 35 to 50 percent; impact at room temperature (Charpy Keyhole) is 150 to 175. Can be used with ac. or dc. When using dc., reverse polarity.—All-State Welding Alloys Co., Inc., 273 Ferris Ave., White Plains, N. Y.

## Add a BIG *SAFETY* FACTOR to your hoist

A Laughlin Safety Hook will boost the "safety efficiency" of your hoist many times . . . protecting workers against injury and equipment against damage from accidentally slipping loads.

Make sure your next Hoist is equipped with a LAUGHLIN SAFETY HOOK

Specify "Laughlin Safety Hooks" when ordering new hoists from your distributor. They pay for themselves many times over in accidents avoided.

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3316



3315 750 pounds

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THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS





TRACTOR - DRAWN SCRAPER --Tractor-drawn scraper has a struck capacity of 14.2 cu. yd.; heaped capacity of 17.5. Features include 3piece cutting edge, 65-in.-wide frontapron opening, curved bowl ejector, high yoke and ground clearance, low center of gravity, short wheel base, and equalized weight distribution. Other basic Wooldridge features are pivot-tilt forced ejection, rear-draft fulcrum leverage, boiling bowl load. and replaceable side-cutter blades. Over-all height of the Model TC-142 is 10 feet 9 inches; width, 11 feet 6 inches; length, with pusher, 35 ft. 2 in.; wheel base, 21 in. Standard tire size is 21:00x24, 16 in. Approximate weight is 28,400 lb.-Wooldridge Mfg. Co., Sunnyvale, Calif.



CONCRETE COMPRESSION TEST-ER—Testing machine exerts a ram pressure of 175 tons for testing concrete materials. It has two manually operated pumps—one to bring the platen into position quickly; the other, to exert crushing pressures very slowly in accordance with ASTM specifications. Two readings are available—one when the first sign of fracture appears; the other, at the point of ultimate destruction. High-walled tray protects operator in case of bursting or shattering.— Forney's, Inc., 209 Elm St., New Castle, Pa.

HALF-YARD SHOVEL CRANE-The Model LS-51 is equipped with full-hydraulic variable-pressure controls. This is the first half-yard shovel-crane to be equipped with Speed-o-Matic controls. The LS-51 is fully convertible for operation as a shovel, trench hoe, lifting crane, dragline, clamshell, or piledriver. Independent rapid boom-hoist provides for hoisting and lowering of the boom under power of the engine. Independent travel and swing are available. Hook-type conical rotating rollers, individually mounted, travel in a 53-in.-dia. roller path. -Link-Belt Speeder Corp., 307 N. Michigan Ave., Chicago 1, Ill.

DON'T Handicap YOUR HORSEPOWER

A Motor Grader with ALL-WHEEL STEER

as one with front steer only

Austin-Western "88-H," "99-H" and Master "99" Power Graders travel quickly and easily to places inaccessible to ordinary graders, maneuver around obstructions such as culverts, bridges or poles, grade sharp reverse curves, and move the heaviest windrows farther and faster with no interference from front axle, frame or scarifier. All-Wheel Steer saves time on every job, makes it possible to do more jobs—faster, easier and cheaper, under all ground and road conditions every month in the year.

AUSTIN-WESTERN COMPANY . AURORA, ILLINOIS, U.S.A.



Short radius curves and sharp corners are no problem. Making a ditch cut around the corner shown in the picture above is easy for the A-W operator—impossible with any other grader.



Using All-Wheel Steer to offset the front and rear trucks enables the A-W machine to do superb finishing an any slope. In the picture above, the grader is finishing an inslope, working up from the ditch, leaving no tire marks to mar the surface.



Offsetting the grader through All-Wheel Steer neutralizes side thrust. In the photo above, the rear drivers push behind the "toe" of the blade, the front drivers pull ahead of the "heel." All thwelst stay clear of the heavy windrow.



Ditches too wet, or too muddy, to furnish traction for ordinary graders are handled easily by the A-W machine as in the photo above. Rear Sicer puts the back wheels up where the "gaing is good"—but only Rear Sieer can do it.





DOZER FOR WIDE-GAGE TRAC-TORS—Hydraulic bulldozer is designed for International Harvester TD-14 wide-gage tractors. Mounted completely on main frame of tractor, it provides a standard-gage blade, making possible full utilization of tractor power without overload. Blade is held in any position by holding force of hydraulic rams. Full advantage of spring loading is utilized to eliminate dead shock loads to dozer and tractor. Rear of tractor is clear for winch mounting, rear power take-off, or alteration of tractor drawbar.—Wm. Bros Boiler & Mfg. Co., 1057 Tenth Ave., S. E., Minneapolis, Minn.

BALANCED VANE PUMP—Balanced vane pump is designed for the specialized requirements of hydraulic accessories on mobile equipment. The Series V-200 is designed to maintain automatically correct radial

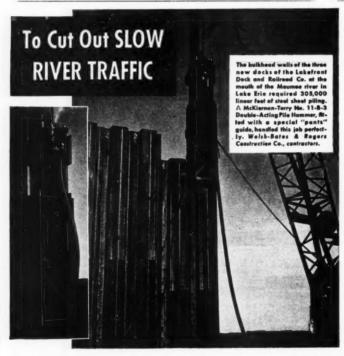
and axial clearances at all times—normal wear is perfectly compensated, and the pump automatically adjusts its clearances to oil viscosity variations resulting from temperature change. Hydraulic balance eliminates bearing loads resulting from pressure, and the vane principle provides for no-load starting. The V-200 pump is made in four capacities for operating pressures up to 1,000 psi.—Vickers, Inc., Industrial Sales Division, 1496 Oakman Blyd. Detroit 32. Mich.

PHOTO-COPY KIT—Photo-copying equipment is now available in a special packaged unit designed to save table space. The package consists of a Model L Tru-Copy-Photo machine with a 9x15-in. copy surface, necessary chemicals, electric dryer, sensitized paper, squeegie, and vertical stainless steel tanks with cover and hangers. No dark room is required when using this equipment.—General Photo Products Co., Inc., 15 Summit Ave., Chatham, N. J.



LIGHT-DUTY 34.7-hp. Motor Grader -Features of 34.7-hp. motor grader include tandem rear-wheel drive, tubular-frame design, and rear-mounted engine transmission for improved visibility. The 8,500-lb. Model D is engineered for low-cost maintenance and light construction work. Other features include short turning radius, maneuverability, quick, accurate blade control, speeds up to 18.61 mph., and Allis-Chalmers Roll-Away moldboard as standard equipment. Hydraulic lift, side shift, and seven pitch positions facilitate handling. For soft soil conditions, where flotation is important, 7.50-20 front tires are available. Accessories include scarifier, loader, all-view cab, and specially designed snow plow .-Allis-Chalmers Mfg. Co., Tractor Division, Box 512, Milwaukee 1, Wis.

SCOOP HAS FLUID DRIVE-Materials-handling Model C Wagnermobile scoop is equipped with Chrysler fluid drive. It is recommended as a lightweight portable loader for yard work and general materials handling. The Model C is available in five sizes with load-lifting capacity of 4,000 lb. Hydraulic controls fold down top section of the hoist track giving an over-all height of 981/2 in. Track reaches 26 ft. with standard extensions. Attachments include 34cu.-yd. concrete hopper, crane lift-boom, and lift forks.--Mixermobile Manufacturers, 6855 N. E. Halsey St., Portland 16, Ore.



These long-needed docks enable the lanky lake vessels to pick up coal loads right at the lake front, without the tedious, bridge-hampered trip five to seven miles up the river to Toledo, formerly necessary.

Fitted with a specially designed guide to insure accuracy, this powerful 11-B-3 McKiernan-Terry Hammer, packing a 19,500 foot-pound wallop, was the contractors' natural choice for handling the big steel sheets.

For engineers and contractors all know that the McKiernan-Terry standard line of ten double-acting and five single-acting pile hammers and two double-acting pile extractors can always supply a piece of equipment of the power needed for any specified pile-handling operation.

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Coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoists and marine equipment are among the many other important products of McKiernan-Terry engineering and manufacturing skill that are performing important service to industry, the railroads and our government.

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with resilient, heavy-duty TEXACO

Two sections of the Merritti Parkway have been resurfaced with durable, joint-free Texaco Asphaltic Concrete by the Peckham Road Corporation, White Plains, N. Y. and Pavements, Inc., New Haven, Conn. The photo below brings out the skid-resistant texture of the new Texaco surface.





Most motorists driving north into New England travel over the Merritt Parkway, a toll road which crosses southern Connecticut. Traffic on Sundays in August averages 39,000 vehicles; Labor Day traffic has reached as high as 54,000.

This year, portions of the original pavement on the Parkway showed signs of disintegration. Connecticut handled the problem by the same economical, effective method which road builders throughout the country have employed for years. Using the existing concrete as a base, a resilient, heavy-duty Texaco Asphaltic Concrete surface of the hot-mix, hot-laid type has been constructed on approximately four miles of this heavily traveled toute.

Whether your road or street project requires as heavy-duty a pavement as Texaco Asphaltic Concrete, a low-cost type of asphalt surfacing, or an inexpensive asphalt surface-treatment, Texaco Asphalt products have the answer. This complete family of high-grade Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils, refined from carefully selected crudes, is the result of 45 years experience in supplying America's asphalt requirements.

Two helpful booklets, which describe all types of asphalt construction for streets, highways and airports, may be obtained free by writing our nearest office.

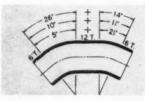
THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17

Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Philadelphia 2 Richmond 19

TEXACO ASPHALT

PAVING BREAKER — New paving breaker, Model B-37, weighs only 38 lb. Features include renewable chuck liner and hammer reversible for longer life. Use of tappet minimizes wear on hammer striking face. Low-lift plate valve assures low air consumption, while long piston stroke provides hard-hitting blow. Throttle valve lock works like the "safety" on a gun.—Gardner-Denver Co., Quincy, Ill.

ROTARY CORE DRILL—New style rotary core drill has All-Worm feature which carries pulverized material away from the tip as soon as drilling begins. Results in less heat, less friction, faster drilling, and longer life. Drills are available in sizes from 1- to 2½-in. diameters. Manufacturer reports drilling as much, as 50 ft. of concrete before needing resharpening. — Concrete Termite Rotary Drill Co., 2091 Foothill Blvd., Pasadena, Calif.



FITTINGS FOR GAS SYSTEMS—Main-line fittings for gas-transmission systems are designed with 6-in. tangents on each end, which span two angles, and are themselves connected with a double 12-in. tangent. Compound Tanj-ells are made in one piece without intermediate buttwelds. They are said to meet any required field angle, within ½ or 1 deg. of what is actually wanted. They are made in a wide range of sizes from 85% to 36 in. outside diameters.—Taylor Forge & Pipe Works, Inc.. P. O. Box 485. Chicago 90, Ill.

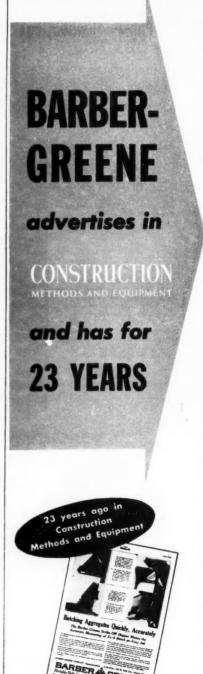
LIGHT-DUTY ASPHALT SPREAD-ER-Spreader for hot- or cold-mix asphalt or stone base courses works in close quarters. The device is drawn by a truck which dumps its load in the spreader and travels forward to spread the material. Depth of spread is adjustable from 1 to 8 in.; widths are furnished in 7 and 9 ft., with blocking possible for any lesser widths. An agitator for use with cold mixes is standard on the 9-ft. model, and available as optional equipment on the 7 footer. The spreader is available in 4- or 5-ft. widths for sidewalk or widening work where over-all width must be kept below 8 ft.-W. E. Grace Mfg. Co., 6000 S. Lamar St., Dallas 15, Tex.

AIR-ENTRAINING AGENT — New air-entraining agent is named Aircrete. It complies fully with government regulations for this type of material and is added to concrete mixes at the mixing plant or job site. Recommended usage is 1 oz. of Aircrete per bag of cement. The material is an aqueous solution of neutralized vinsol resin, designed to reduce surface tension of the gaging water and to cause formation of microscopic globules of air in the concrete mix. —L. Sonneborn Sons, Inc., 80 Eighth Ave., New York 11, N. Y.



ADJUSTABLE BASEMENT POST -Adjustable 4-in. tubular-steel basement post provides a constantdiameter column for the full height of the post, but allows for an adjustment of 4 in. through the jack-screw assembly. This assembly may be positioned at the top or bottom of the columns. Post permits builders to set heavy-duty basement posts without special cutting of pipe or arranging shoring while setting the post. Adjustment feature enables builders to keep columns tight during all phases of construction. Steel columns are available in standard heights of 6 ft. 4 in., 6 ft. 10 in., and 7 ft. 4 in., plus 4-in. jack adjustment. Tested strength of the post is said to exceed 50,000 lb. The column may be locked permanently against tampering or loosening .- Holm's Mfg. Co. of Ohio, 103 N. Main St., Akron, Ohio.

HEAVY-DUTY ARC WELDER—The Wilson 36-A Yellow Jacket arc welder is built in 300- and 400-amp: sizes. It is a 40-v. dc. variable-voltage-generator type and features simplified control of current output by a hand-wheel mounted on the control cabinet. Close calibration of current dial eliminates need for meters. The 36-A is powered by a 6-cylinder gasoline engine. Dimensions are: 76 in. long, 28 in. wide, 49 in. high. Trailer mounting is available for portable models.—Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y.



How Barber-Greene uses
CONSTRUCTION METHODS
AND EQUIPMENT
today

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Barber-Greene...

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For thousands of field engineers and contractors . . . all over the country . . . on all kinds of construction projects . . . mean business when they read CONSTRUCTION METHODS AND EQUIPMENT.\* Its how-to-do-it, step-by-step pictures and text inform them about new and improved ways of doing their jobs. Its advertising pages keep them up to date on what's available in the equipment, materials, parts, and supplies they buy and use.

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26,500 paid subscribers by the 6.30.49 ABC statement . . . plus thousands of pass-along readers.

CONSTRUCTION METHODS AND EQUIPMENT

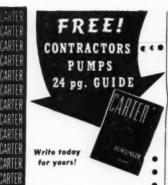


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facturers who advertise in CON-STRUCTION METHODS AND EQUIP-MENT to reach the men "on location" who select and buy the equipment they use and maintain.

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RUBBER-TIRED CRANES-Three new mobile shovel-cranes include: Type 34-T mounted on truck chassis with independent power (two engines, one in rotating assembly for crane and shovel operations and one in truck for propelling carrier); Type 34-M, a self-propelled unit with one engine for all operations including propelling in either direction: Type 604-M, with one engine supplying power for all operations and oscillating tandem-type rear axles.-Lima Shovel & Crane Division, Lima-Hamilton Corp., Lima, Ohio.

LIGHTWEIGHT MASONRY SAW-Masonry saw featuring rigid-tube construction weighs only 225 lb. The Valor is powered by a 11/2-hp. motor which operates both the water pump and the saw blade to make an efficient dry-and-wet cutting device. The saw is also available in dry-cut models. The Valor features an automatic blade-pressure control, and 10 different head positions for various size materials. The unit is available in a take-apart model.-The Victor Engineering Corp., Bristol, Pa.



BOOMLESS WEED SPRAYER-Weed sprayer features special spray gun which eliminates the need for booms or other attachments which have to be raised or lowered to pass guard rails, sign posts, or other ob-structions. The Kromer gun sprays a distance of 30 ft. in a straight line, giving an even distribution of chemical over the entire distance. The gun can be removed from its mounting for spraying inaccessible locations. The Kromer equipment also includes a hand-boom which covers a 4-ft. swath for use along fences and for spot spraying. - 0. W. Kromer Co., 1120 Emerson Ave., N. W., Minneapolis 11, Minn.

COMPRESSOR DELIVERS 105 CFM.

-Feature of the latest compressor in the Schramm line is the fact that the engine and the compressor complement each other, and that 90 percent of the engine and compressor parts are interchangeable. The Unistage compressor will deliver 105 cu. ft. of air per min. It is equipped with a Pneumastat which assures infinitely variable speeds and eliminates continuous loading and unloading. - Schramm, Inc., West Chester, Pa.

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FLOOR SCREED SUPPORT—Adjustable floor screed support can be used with pipe screeds, 2x2-in. wood screeds, or with steel screeds. Featuring reusable screed holders, the Adjusto support can be used for any slab thickness between 4 and 18 in. Features include quick, simple adjustments, elimination of chairs, and ease of installation.—Collier Mfg. Co., 720 Lafayette St., Jefferson City, Mo.



PORTABLE TILTING-ARBOR SAW
—Gasoline-engine driven, tilting-arbor saw handles all jobs calling for
straight ripping, cut off, angular cutting, grooving, dadoing, shaping, and
rabbeting. Table is 20x27 in. Saw
comes equipped with extensions to
provide a 42x32-in. working space.
Toolkraft Model 97 can be powered
by electric motor, if desired.—Toolkraft Corp., 449 Meadow St., Waterbury 91, Conn.



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MODEL E: 4/10 cu. yd. cap., mounts on any standard 5-ton truck. MODEL J: 1/4 cu. yd. cap., mounts

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HIGH - SPEED INTERMITTENT WELD-Hobart No. 313 electrode is designed for making short, intermittent welds at high speed on all gages of steel in any position using either ac. or dc., straight or reverse polarity. This Class E-6013 electrode has fast operating characteristics, together with a forceful spray-type arc. The arc can be easily started and restarted without scraping or hitting the electrode against the work surface. The tendency for this type of electrode to stick to the work piece is said to have been eliminated. Hobart No. 313 electrode is available in 12-in. length in 3/32-in. dia. and in 14-in. length in 1/8-, 5/32- and 3/16in. sizes.-Hobart Bros. Co., Hobart Square, Troy, Ohio.



SELF-PROPELLED CRANE CAR-RIAGE—One-man-operated, self-propelled crane carriage has a 25-ton capacity. Propulsion power is obtained through travel clutches and vertical travel shaft of crane. The Krane Karriage has a 4-speed transmission with a speed range of 2 to 10 mph in either direction. It is equipped with air-operated brakes on all wheels, and hydraulic steering. —Keystone Driller Co., 419 Wood St., Pittsburgh 22. Pa.

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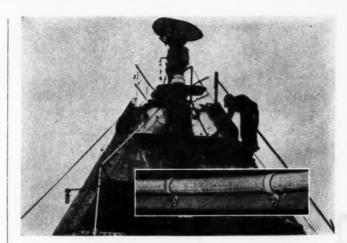
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FIELD SERVICE UNIT—Field service unit provides all necessary equipment for servicing of all types of construction machinery. Mounted on a 4-wheel-drive truck, it contains a 300-amp. welder, 8 kw. ac. generator, a Little Workhorse compressor operating at 150-lb. pressure, oxyacetylene welding, cutting, and brazing outfit, 8-in. electric bench grinder, portable arbor press, floodlights, 7,500-lb. winch, and complete complement of service tools, and other equipment. All powered equipment is driven by a P-80 Davey heavyduty power take-off. The truck provides room for driver and six passengers.—Davey Compressor Co., Kent, Ohio.

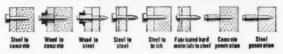
MOBILE RADIOTELEPHONE—New mobile radiotelephone unit features small size, low cost, reliable performance, and versatility. The Model FT-145-10 has a power output of 10 watts at any frequency in the 152 to 162 megacycle band. It draws 7.3 amp. standby and 23.9 amp. transmit; has an over-all size of 5 5/16x 12 3/16x14% in.; and weighs 27½ lb. without cables and control unit.—Federal Telephone & Radio Corp., 100 Kingsland Road, Clifton, N. J.



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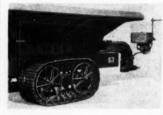
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RAPID-SHIFTING DRAG SCRAPER

-When a power drag scraper is used for cut-and-fill work, it is desirable to provide a means for rapid shifting of the tail end of the machine. This is now possible with a new series of drag scrapers in sizes from 1/3 to 4 cu. yd. The Sauerman rapid-shifting scraper machines provide complete automatic control for shifting the tail end of the machine. Heart of the unit is the 3-drum hoist and elevated tail bridle assembly. A bridle cable is stretched between two tail towers, with the bridle for the tail block riding on this cable. The third drum of the hoist moves the bridle frame in one direction, the pull of the outhaul cable pulls it in the opposite direction, and the drum brake holds it in position, as desired. Each machine is furnished with a gasoline-, diesel-, or electric-driven, 3-drum roller-bearing hoist. Normal specifications call for cable spans ranging from 200 ft. for the small units to 400 ft. for the largest units. These spans can be extended if required. Timber tail towers are furnished by the purchaser, but Sauerman will supply tower caps and drawings to help in their construction.—Sauerman Bros., Inc., 532 S. Clinton St., Chicago 7, Ill.



PUMP UNIT FOR DUMP-TRAILER
—Hydraulic pump units are now available for operation of Forged-

available for operation of Forged-Trak dump-trailers with all makes of track-type tractors. The Athey hydraulic pump unit provides smooth, positive control of dumping operations, allowing the trailers to be side-dumped while stationary or while tractor and trailer are in motion. Controls for the hydraulic system are located by the tractor operator.—Athey Products Corp., 5631 W. 65th St., Chicago 38, Ill.

RUBBER-BASE HOUSE PAINT—Rubber-base house paint features one-coat application, excellent gloss retention, durability, and ease of application. Its prime purpose is to provide a suitable paint for one-coat refinishing, plus the advantage of rubber, which is desirable in a house paint. Supplied in white, the Wood-Bond paint can be easily tinted with oil colors.—The Wilbur & Williams Co., Greenleaf & Leon Sts., Boston 15, Mass.

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The BANTAM mounts on any 11/2 ton truck chassis or larger. Drives up to the job and digs in. Finishes one job at a profit-making pace and speeds on to the next without losing time. It's a money-maker in tight quarters ... a fast worker in digging water and sewage systems, drainage ditches, basements, and handling sand, gravel, and other construction materials. Interchangeable booms and buckets make the BANTAM 7 machines in one. It is quickly converted on the job for a wide variety of operations.

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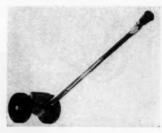


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tors, with telescopic lenses focused on infinity, have been placed at strategic intervals around a center post on which the transit is mounted. Focusing the transit on any collimator is equivalent to sighting a star. Azimuths are accurately determined by revolving the transits and sighting through each of the six collimators.—W. & L. E. Gurley, Troy, N.Y.

DETECTOR FOR PIPE LEAKS—A time-tested, but not too well-known, device quickly locates leaks in pipes, tanks, or other storage vessels by application of a vacuum. In opera-

tion, the seams to be tested are covered with soap suds, an inspection box having a clear glass top and soft rubber base is laid over the seam, and a powerful vacuum created. This draws air through any leaks, causing soap bubbles to form, which are clearly visible through the glass top. Testers are available in a wide variety of sizes and shapes for inside corners, outside corners, circumferential seams, and straight seams.—American Pipe & Steel Corp., Alhambra, Calif.



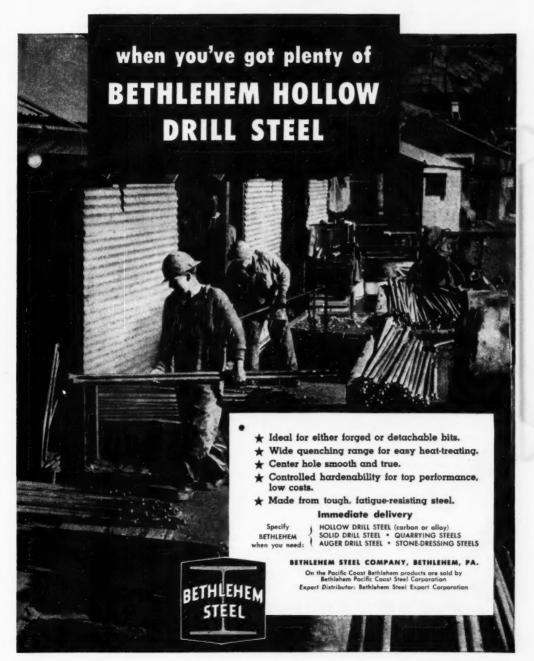
LINE-MEASURING METER—Shalda measure meter can be used to compute straight or curved distances in feet and tenths, and is accurate to plus or minus 0.1 percent in 100 ft. Mounted on rubber tires, it has a telescoping handle to permit fast, easy operations. Scale on Model Druns up to 10,000 ft. Unit weighs 3 lb.—Exclusive agent—F. D. McGirr & Associates, 145 S. Elm Drive, Beverly Hills, Calif.

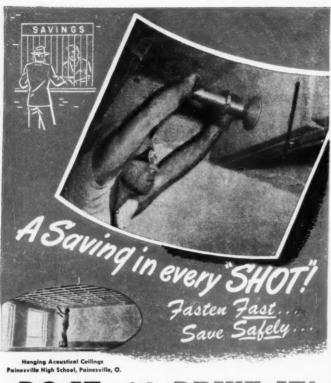
LOADS ARE WEIGHED AS LIFT-ED—Hydraulic scale is designed primarily for measurement of loads as they are handled by a crane. The Emery hydraulic cell converts force into corresponding fluid pressure which actuates a pressure indicator calibrated to read in pounds. The Emery units are available in three models having capacity ranges up to 30,000 lb.; and with  $8\frac{1}{2}$ , 12, or 16-in.dia. dials.—A. H. Emery Co., Stamford, Conn.

**SELF - CONTAINED** 200 - AMP WELDER-The new Wilson arcwelder has a rated maximum capacity of 200 amp. and is completely self-contained. Features include welding range divided into two ranges of current adjustment with stepless control throughout each range; settings are made quickly and accurately by turning the crank handle on the top of the machine; fullview scale makes current settings easy to read; and windings are fully insulated with heat-resistant spunglass fiber. Standard equipment includes a primary on-and-off switch and 10 ft. of 3-conductor rubber-covered primary cable with lugs attached.—Air Reduction Sales Co., 60 E. 42nd St., New York 17, N.Y.



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If you're still wasting time and money by using old-fashioned "dig and drill" methods for fastening steel or wood to concrete or steel, better get the facts on DRIVE-IT, the modern "split-second" fastening system. It's safe, easy on your men and on your pocketbook!

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THE MODERN MIRACLE TOOL

CHROME CLAD CHAIN TAPE -The Super Hi-Way chrome-clad drag or chain tape is made from a tough, flexible, spring-tempered steel. It is heavily chrome-plated and has deeply etched jet-black lines and figures. The chrome-plated nonglare surface is said not to chip. crack or peel and to resist corrosion, wear and tear. These Super Hi-Way tapes have a marking at 2 ft. 41/2 in .- one-half standard railroad gage. The improved-type clips are riveted to the line with reinforcing strips to avoid end-of-line breakage. The Lufkin tapes are available with three types of graduations and numbering. All three are available in 100-, 200-, or 300-ft. lengths, and when specified, are encased in a sturdy, metal reel. Tapes more than 100 ft. in length have 4-arm reel with D handle and spike end .- Lufkin Rule Co., Saginaw, Mich.



LIGHT-DUTY HYDRAULIC SCRAP-ER - Hydraulically controlled 2wheel carrying scraper quickly converts into a tool carrier. Ateco J-2 has a heaped capacity of 2 cu. yd., and is designed for use with 20- to 35hp. wheel tractors or small tracktype tractors. Front apron operates independently of cutting and spreading, and is regulated from the tractor seat. Cutting depths range from 0 to 4 in.; spreading depths, from 0 to 111/2 in. Ripper teeth can be fastened to the square bar across the front of the scraper for scarifying work. Wheels are wide base and are equipped with 6.50x16 pneumatic tires. Unit is 6-ft. 5-in. wide, 13 ft. long, and has a shipping weight of 2,128 lb. A 3½-cu-yd. unit is contemplated. — American Tractor Equipment Corp., 9131 San Leandro Blvd., Oakland 3, Calif.

SIX-INCH SLIDE RULE—Duplex-type all-metal 6-in. log log slide rule has 16 scale arrangements. It has a dimensionally stable magnesium alloy body, with optical tongues and grooves machined to an accuracy of 0.001 in. The Model 330 rule measures 1 3/32x6x3/32 in. It comes in a leather case, and is provided with an illustrated instruction manual.—Pickett & Eckel, Inc., 5 S. Wabash, Chicago 3, III.

lel 222

UNLOADER FOR RR. CARS-Selfcontained vibrator unit speeds unloading of bulk granular materials from open-top hopper-bottom cars. Rotation of the shaker's vibrator shaft causes the vibrator end of the shaker to rise and fall, imparting heavy hammer-like blows to the car equal in number to the speed of the vibrator shaft. Normally, cars are unloaded in 1 to 3 min., depending on type and condition of material handled. The car shaker weighs 9,500 lb., complete with a 20-hp., 3phase, 60-cycle 220- or 440-v. ac. motor.—Link-Belt Co., 307 N. Michigan Ave., Chicago 1, Ill.



PLASTER AND MORTAR MIXER-Improved Power Hoe plaster and mortar mixer has a 6-cu.-ft. capacity and will handle up to 40 shovels of sand. Of the tilt-type, the mixing drum and 6.4-hp. gasoline engine are entirely separate. In addition to exact hand-lever control of discharge at any point in the drum's arc, two fixed positions are offered-24 in. for wheelbarrows and 171/2 in. for mortar boxes. Four sets of mixing blades, with four blades per set, provide uniform distribution of binder material. With axles telescoped and hub caps removed, the mixer will pass through 33-in. doorways .-The Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio.

FLOOR FORMS LEAVE AIR SPACES-Prefabricated forms permit construction of floor section which is arched above the fill and which provides a dead-air space under 75 percent of the floor area. The Westbilt forms are especially designed for use in basementless buildings. They are made of a waterrepellent material, structurally sound and bridged to withstand normal field usage and weather conditions. These forms when properly supported can be used with reinforced concrete in thicknesses up to 6 in. The Westbilt forms provide a base for partition fasteners and for radiant heat coils. Alterations for piping turnups or other fittings are made by any sharp cutting instrument,-Westbilt, Inc., 93 Tiffany Blvd., Newark 4, N. J.



In response to repeated requests for larger sizes, SONOTUBES are now being made with inside diameters up to 24"-lengths up to 24'. Easily cut with hand saw to desired lengths on the job.

ONE-TIME USE

New Beach Pavillion shows the practical as well as architec-tural advantages of concrete columns formed with SONO-THRES





SONOTUBES provide ideal method of forming concrete columns in modern sewage disposal plant construction.

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9ts a Guarantee

Type of Bucket	Load Time	Dump Time	Jockeying Time	Total Time	Fuil Loads Each Trip
AUTOMATIC	3 to 7 sec.	2 to 4 sec.	0 sec.	5 to 11 sec.	
Ordinary Type	7 to 16 sec.	4 to 7 sec.	2 to 6 sec.	13 to 29 sec.	85%

THESE are the facts proven by numerous tests made recently between the Page AUTOMATIC and ordinary type buckets, using all sizes from 3/8 to 30 cu. yd. in various

types of digging conditions.

The AUTOMATIC always gets a full load within 1 to 2 bucket lengths and can be picked up immediately without spilling while ordinary buckets have to be pulled at least 4 to 6 bucket lengths to get and hold their loads. Another point about the AUTOMATIC—it is always the correct weight for maximum digging efficiency. "Light-weight" buckets of larger "rated" capacity cannot match the profit-making ability of a Page. For more yardage per day, lower power costs and minimum

maintenance, be sure your next dragline bucket is a Page AUTOMATIC.

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Call or write for details on how to make a time study with your own stop-watch for posi-tive proof—or better still, ask for a Page engineer to call and prove these facts without any

25 to 450 less power required for day-after-day operation because the AUTOMATIC loads, dumps and handles faster.

Less maintenance because the Less maintenance because the AUTOMATIC is not worn out through excessive dragging to get its load.

The AUTOMATIC always lands in digging position, digs in at first pull on the load line and never produces windrows.

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9 cu. yd. AUTOMATIC on a Page Model 625 Dual Die-

sel Walking Dragline with

150' boom.

PAGE ENGINEERING COMPANY Clearing Post Office . Chicago 38, Illinois SAW-GUMMING MACHINE—Powered saw-gumming machine is recommended for precision jointing, gumming, tooth forming, and sharpening of rip and cutoff circular saws. The Belsaw handles all types of circular saws from 8- to 48-in. diameters, having ½- to 2-in. center holes. The Belsaw is powered by a ¼-hp. 110-v. 66-cycle motor. It weighs 77 lb. and is easily bolted to the edge of a work bench.—Belsaw Machinery Co., 315. Westport Road, Kansas City 2, Mo.



PLASTER MORTAR MIXER-Plaster mortar mixer with 10-cu. ft. capacity is recommended for highvolume production. Mounted on two wheels with extra-wide treads for fast, easy towing, the 10-P mixer is of the non-tilt end-discharge type. Push-down tow-pole simplifies handling and prevents tipping. Charging height is 46 in. Unit is powered by a 15-hp., air-cooled engine. Nonclogging mixing blades are arranged for radial and longitudinal adjustment and produce end-to-end mixing action and rapid discharge. Blades are set to scour drum with each revolution.—Kwik-Mix Co., (Koeh-ring Subsidiary), Port Washington, Wis

VERTICAL - SHAFT ENGINE — Vertical-shaft-type engine develops 1½ to 1¾ hp, and weighs approximately 35 lb. The Model VS-700 engines are available with or without mounting flange. Features needle bearings as main bearings, quick starting and smooth running at slow speeds, and splash-type lubrication.—Clinton Machine Co., Clinton, Mich.

HEAVY-DUTY DETERGENT OILS—Super Tenol and Tenol Extra are recommended for applications requiring heavy-duty service and where improper or high sulphur fuels are used. Features include superior performance and engine cleanliness, full power under high-temperature operations and extraheavy-duty service, and retarding of development of cold-engine sludge under conditions of long idling and stop-and-go operation.—Sinclair Refining Co., 630 Fifth Ave., New York, N. Y.





WARCO 4D-76

General Duty Motor GRADER

Way ahead in design . . . in construction . . . in PROFITABLE general duty service! That's your next motor grader . . . that's your new WARCO 4D-76. Put these "brass tacks" advantages to work for you: completely cab-controlled movement of blade from 90° elevation on one side to 90° on the other . . . 360° blade rotation without removing scarifier or teeth . . . sliding moldboard for extra reach . . big interchangeable tires all around for effective traction and flotation . . . powerful 76 H.P. diesel engine . . . extra working clearances front and rear . . . less operator fatigue . . mechanical steering, with power booster.

Let your WARCO dealer tell you . . . show you . . . prove to your own satisfaction that the new WARCO 4D-76 is your most practical, most profitable general-duty motor grader investment for today . . . and for the future.

compare . . . select the WARCO best suited to your needs



_	_		_	_				
AII	con	trols	are	in	front	of	cob.	
wit	hin	easy	re	ach	of .	ope	rator	

	Without Cab or Scarifier Approximate Weights in Lbs.					
	Model No. and HP	Total	On Front Wheels	On Rear Wheels	Blade Pressure	
HEAVY	4D-100	22,879	6,617	16,262	11,900	
GENERAL	4D-76	21,356	6,279	15,077	11,205	

W. A. RIDDELL CORP. . Bucyrus, Ohio

BUILDERS OF WARCO MOTOR GRADERS . HERCULES ROAD ROLLERS

SURVEYING INSTRUMENTS—Production has resumed on a complete line of surveying equipment including Dumpy, Abney, builders', and hand levels. Curtailed by the war, the present L&S line includes new improvements and new designs with lighter-weight materials and larger dials.—Leupold & Stevens Instruments, 4445 N. E. Glisan St., Portland 13. Ore.

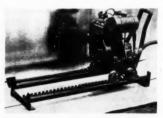


ROTARY SNOW PLOW—Sole distributorship of the Sicard line of Snow Master rotary plows has been granted to Austin-Western. Features of the Snow Master are: complete control of casting in a 220-deg, are at distances from 3 to 150 ft.; blower housing and wrist-action chute enable casting to exact spot desired; casting or loading can be carried on at full speed. Four-wheel drive of the A-W graders furnish heavy traction under all conditions.—Austin-Western Co., Aurora, III.

PRECISION DRAFTING MACHINE

—Model D Wrigraph eliminates ob-

—Model D Wrigraph eliminates obstruction on top of drawing boards. Unit mounts in extreme right-hand corner and permits free movement of the scales over the entire drawing area. It is a portable unit for use on any 20x26-in. drawing board. Available in two sizes, the unit has interchangeable scales in all standard graduations. Protractor can be locked at any angle.—L. G. Wright, Inc., Box 63-AA. Cleveland 21, Ohio.



EARTH-BORING MACHINE—Earthworm boring machines permit laying pipe line of all types up to 3-in. dia., and up to 150 ft. in length without breaking through the surface. In operation, water is forced through the drill stem as a lubricant and to wash back the cuttings. Three types of bits are available to work in all types of soil.—Lube Jack Co., 1415. Fourteenth St., Santa Monica, Calif.

# ROAD BUILDERS'

Tailored for transport ...



Engineered for erection records...



Built for precision batching at top production speed!

There's the story! That's why the country's foremost contractors "buy BUTLER" year after year. That's why BUTLER equipment is playing such a leading part in the great national highway construction program. The secret, of course, is BUTLER Engineered Design.

BUTLER BIN COMPANY

September 1949 - CONSTRUCTION Methods and Equipment - Page 131

## Up Faster-no bolts to master Ezebilt STEEL SCAFFOLDING

THE MAGIC

Our exclusive "gravity lock" "gravity sleeve arrange-ment makes it po sible to erect and dismantle Exebilt scaffolding with-

If you have ever used cumbersome wood-type scaffolding you are in a position to appreciate all the advantages of owning low-cost Ezebilt. This new lightweight tubular steel scaffolding is easy to move and store . . . and the gravity lock sleeve arrangement that eliminates bolts, makes it a matter of just minutes to erect a section. Be sure to see Ezebilt soon - Buy or Rent-distributors in all prinicipal cities.

Send for Illustrated Bulletin #5



### WEATHER SECURED

because sealed



World's Largest Manufacturer of Steel-Panel Scatfoldi

## CORRUGATED CLOSURES

against rain, snow, dust and unwanted drafts between corrugated sheeting and flashings, gutters, concrete curbing and other joints. FABCO closure strips are pre-molded of rubber or asphalt with strengthening mineral fillers to fit all standard sheet corrugations. They cost less than hand caulking and provide firm nailing or bolting support. They prevent mashing and distortion of sheet cor rugations caused by roof-walking. Placed between aluminum sheets and steel members they prevent electrolytic corrosion. FABCO Closures retain their pliancy in cold weather.

To get best results in building, specify FABCO Closures when using corrugated sheets. Immediately available from stock. Write for Bulletin 481 and prices

FABRICATED PRODUCTS CO. Pittsburgh 16, Pa.



BLADE EDGES GUARANTEED SPLIT-PROOF

INGERSOLL SHOVELS The Borg-Warner Line

INGERSOLL STEEL DIVISION
BORG-WARNER CORPORATION
New Castle, Indiana
Planta: New Castle, Ind.; Chicage, Ill.; Kalamezoe, Mich.



TWELVE-TON MOTOR GRADER Heavy-duty motor grader weighs 24,-500 lb. without scarifier (25,800 lb., with). Blade pressure without scarifier is 12,440 lb; with, 14,620 lb. Scarifier attachment is offered as optional equipment. Features include hydro-mechanical controls; 271/2-in. front-axle clearance; 87-in. shoulder reach; mechanical steering; Hercules 130-hp. full diesel engine; 4-wheel hydraulic brakes; and easy accessibility to all operating parts for maintenance and service. Overall length of machine is 25 ft. 9½ in.; width is 7 ft. 10 in.; height with a cab, 10 ft. 4 in. Wheels remain perpendicular to ground even when running over 14-in.-high obstacles or into 14-in.-deep ditches.—The Huber Mfg. Co., Marion, Ohio.

DUAL-FUEL DIESELS-Greater efficiency and smoother operation over a wide load range are provided by the new dual-plunger fuel pump and automatic thermal-air control which are standard equipment on Worthington dual-fuel diesel engines. The dual-plunger fuel pump incorporates in one unit the requirements for a pump to handle the full load of the engine on oil operation, and at the same time provides the most effective method of handling the small quantity of pilot oil for burning the gas fuel. The automatic thermal air control provides the correct air/fuel ratio at all times, and in direct relation to load changes.-Worthington Pump & Machinery Corp., Harrison,



LEVEL HAS 18-IN. TELESCOPE-Sighting level will focus on object as near as 8 ft. from center of instrument. Telescope is 18 in. long, has a magnifying power of 26 diameters, and is of the erecting type. Level vial is carried within the channel-shaped body to protect it from breakage-sensitivity of vial is 35 sec. Operating heads of adjusting screws are made of plastic which is not cold to touch in winter weather. Instrument is furnished complete with case, sunshade, objective dust cap, adjusting pin, and tripod; plus free adjustment for one year.—Precise Instrument Co., 15504 Telegraph Road, Detroit 23, Mich. SQUARE-MESH WIRE CLOTH-All-welded square-mesh wire cloths are available in eight styles: 1x1-in... in 16, 17, and 18 gage; 3/4 x 3/4, in 18, 19, and 20 gage; and ½x½, in 20 and 21 gage. All are available in 24-, 30-, and 36-in. widths, in 100-ft.-long rolls. Welded construction at the joints eliminates crimping and interlocking and permits all cross wires to lay on the same size. The wire cloths are galvanized after fabricating to exclude the possibility of rust, wear, or dirt accumulation. They are also available in plain steel finish.-Wickwire Bros., Inc., Cortland, N. Y.



GRADER IN 76-HP. RANGEeral-duty motor grader in 76-hp. range incorporates features built into the Warco 4D-100 heavy-duty unit. These include blade which revolves in full circle without removing scarifier or teeth; blade travel from 90deg. elevation on one side to 90-deg. elevation on the other without operator leaving the cab; effortless hydraulic control; sliding moldboard for extra side reach; powerful diesel engine; and ample working clearances.—W. A. Riddell Corp., 200 Warren St., Bucyrus, Ohio.

FLAMEPROOFED CANVAS-Flameproofed and waterproofed treated canvas meets Federal Specification CCC-D-746. FlameZel-treated canvas, when subjected to the flame of a blow torch for several min-utes, showed that flame and other incendiary action were limited to the immediate area heated by the flame with no spreading of flames or glow. An additional factor was the noticeable absence of smoldering immediately after the torch was removed. Under development for several years, FlameZel is produced entirely from domestic chemicals.-H. Wenzel Tent & Duck Co., 1035 Paul, St. Louis, Mo

COATING FOR BLUEPRINTS-Mertone pre-coating produces blueprints with uniform deep blue backgrounds without burning out the faint lines of tracings. Other fea-tures include greater latitude in printing speeds, fewer changes in machine speed, and less waste through over-exposure. - Monsanto Chemical Co., Merrimac Division, Everett, Mass.

Threaded tie rod extends through hole hored in base of Hoist-All. Rod is pulled by long nut with welded loop.

COFFING HOIST-ALL



You can save valuable time and steel, eliminate expense of tubes by pulling form tie rods with a Coffing Hoist-All. With base against form, this powerful tool simply hooks onto tie rod, "jacks" it out-quickly, safely. No damage to rods, no tubes left in form, rods are ready to use again. Hoist-All has 44-in, lift, weighs 23 lb., has plenty of "pull" to overcome adhesion of concrete to rods.

### It's a Hoist . . . a Jack . . . a Puller

With stand, the Hoist-All is a powerful high-lift jack. Without stand, it's ready for all hoisting, pulling, load binding jobs. "Safety-load" handle protects against overload. Two rugged models-2000 and 4000 lb. capacity. For complete information write for bulletin D9HA.



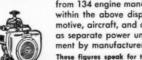
COFFING HOIST COMPANY, Danville, Illinois Quik-Lift Electric Hoists — Safety-Pull Ratchet Lever Haists — Mighty Midget Pullers — Spur-Geared Hoists — Cifferential Chain Hoists — Load Binders

## Here's the Proof of Preference for WISCONSIN Air-Cooled ENGINES

### 4 Out of 10 Carburetor Type Engines made in 1947 in 2 to 30 H.P. Range were WISCONSINS!



According to an official bulletin issued on April, 22, 1949 by The Bureau of Census, Dept. of Commerce (Preliminary Industry Report, Series MC-31D, covering the production of Internal Combustion Engines for the year 1947) 40.2% of all carburetor type engines within a cu. in. displacement range from 11.0 to 175.9 were Wisconsin Air-Cooled Engines.



The summary includes data received by the Census Bureau from 134 engine manufacturers. The tabulation of the 9 groups within the above displacement range, does not include automotive, aircraft, and outboard marine engines, built for resale as separate power units or engines for use as original equipment by manufacturers.

These figures speak for themselves . . . in terms of outstanding preference for Wisconsin Air-Cooled Engines among power users in all fields.



WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy Duty Air-Coaled Engines



MEDIUM-DUTY MOTOR GRADER—Galion Model 303 is a medium-duty motor grader for maintenance or construction of roads and streets. It can be supplied with either a gasoline or diesel 45-hp. engine. Special feature is a choice of all-gear four-wheel tandem drive or single drive, and manual or hydraulic-booster steering. All operations of

blade, scarifier, and leaning front wheels are completely hydraulic. Blade is adjustable 360-deg. horizontally for operation in reverse and 90-deg. vertically for bank cutting. Weight, without scarifier, is 13,145 lb. (tandem drive), or 11,400 lb. (single drive). Tire sizes vary according to type of drive and service requirements.—The Galion Iron Works & Mfg. Co., Galion, Ohio.

ASPHALT VISCOSITY METER— High-consistency rotational viscometer measures the viscosity of asphalt and related substances. It makes possible a complete evaluation of high consistency materials having complex flow characteristics. It will determine viscosity, degree of flow complexity, and relative elasticity. Torque resulting from viscous drag is recorded by a Brown Electronik recorder through a Stratham strain gage. The top has provision for preheating four samples while a fifth is being tested. Overall dimensions: 66 in. high, 24 in. long, and 20 in. wide. Precision Scientific Co., 3737 W. Cortland St., Chicago 47, Ill.



FOUR-WHEEL SCRAPERS — Improved scrapers are available in five models ranging in capacity from 7.6 yd. to 28 yd. Digging and loading are speeded by heavy-duty, reversible and replaceable cutting and extension-cutting edges. Draft point is located aft of the cutting edge to simplify loading. Positive roll-out ejection is provided by the rear apron moving up and forward in one operation. Designed for operation in conjunction with Allis-Chalmers tractors.—Gar Wood Industries, Inc., Findlay Division, Findlay, Ohio.

MOTOR FOR DEEP-WFLL PUMPS
—New-type CSP Life-Line motors
are designed especially for use with
deep-well turbine pumps. These
weather-proof, vertical hollow-shaft
motors can be furnished as: complete
motor, motor without base, or as a
stator and rotor only. They are of
the squirrel-cage induction type.
Horsepower range is 1 to 20; cycles
available are 60, 50, and 25; voltages, 208, 220, 440, 550; NEMA standard frames from 225 to 326 are

available. - Westinghouse Electric

Corp., Box 868, Pittsburgh 30, Pa.



CEMENT SPREADER—Spreads 5 to 10-ft. swath in any proportion necessary for construction of soil-cement roads. A single chain with cross bars drags the cement over a tapered plate from the broad end toward the pointed end resulting in smooth, even spread. Spreader is coupled to dump truck so that cement is fed directly into its 10-ft. hopper.—Hercules Steel Products Corp., Galion, Ohio.



MALSBARY MANUFACTURING CO.

845 92nd AVENUE . OAKLAND 3. CALIFORNIA



## WHERE DANGER LURKS ...

## THAT'S THE PLACE FOR SAFETY-BEAM



Safety-Beam installed on new approach to famous Pulaski Skyway, near Newark, N. J. Contractor: S. J. Grove: & Sons Co., Woodbridge, N. J.



Safety-Beam protects motorists using this bridge on Glenville-Baxley Road, in Georgia. Contractor: Scott Construction Co., Thomasville, Ga.

Wherever there's a danger point along a highway a sharp turn, embankment, bridge approach or other source of hazard — that's the place for Bethlehem Safety-Beam Guard Rail.

Bethlehem Safety-Beam Guard Rail is ideal for protecting traffic because of its strength and ability to absorb impact. The rail consists of heavy sections of steel plate in a channel-type design, bolted together on either steel or wood posts to form a continuous, impact-absorbing beam. What happens when a vehicle strikes Safety-Beam? Impact is absorbed by several adjacent posts, rather than one post, thus making it next to impossible for the vehicle to break through the rail.

Safety-Beam Guard Rail is easily visible day and night. It normally comes in 12 ft, 6 in. lengths, but is also furnished in lengths up to 50 ft. It can be installed economically, even by unskilled labor, for it fastens to the post with only one bolt. No end anchor rods, special tools or complicated adjustments are required.

Folder 545 shows standard details and assembly plans for Bethlehem Safety-Beam Guard Rail. Write for a copy.

### BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation Export Distributor: Bethlehem Steel Export Corporation

### STEEL FOR HIGHWAYS

Dowel Units \* Reinforcing Bars \* Guard Rail Posts Bar Mats \* Guard Rail \* Wire Rope and Strand Hollow Drill Steel \* Spikes \* Bolts and Nuts \* Pipe Sheet- and H-Piling \* Fabricated Structural Steel Timber Bridge Hardware \* Tie-Rods





press-100, 150, 200, 300 or 400 ton capacity. These sturdy, standard units are designed and built to take the rugged jobs with ease.

In addition to their construction features Rodgers Presses may be powered by your selection of 2-speed or 4-speed hand pumps or power-driven units if extra speed is required. Hand pumps can be converted to power by adding an electric gear head motor.

Standard shop presses are also available in 60 and 80 ton capacities for lighter work. Special presses are designed and made by Rodgers for specific requirements.

gives full details on the complete shop press line with illustrations descriptions and specifications. Send for your capy today.



odgers Hydraulic, 9mc.

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### New PUBLICATIONS From MANUFACTURERS

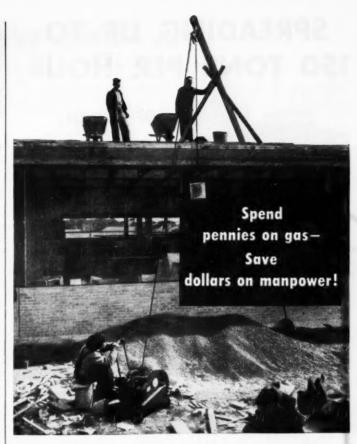
The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use

ELECTRIC-MOTOR DESIGN-Multi-color bulletin features the Uniclosed motor. Dramatic color-photo reproductions and progressive drawings are used in Bulletin No. 1524 to illustrate special features of the Uniclose design including armorclad asbestos-protected windings, drip - proof housing, Lubriflush lubrication, normalized castings, cyclone ventilation, centricast rotor, annealed laminations, and others. These motors are available in a range of horsepower ratings from 1/4 to 250 .- U. S. Electrical Motors, Inc., 200 E. Slauson Ave., Los Angeles 54, Calif.

AUTO-TRUCK PRODUCTION-A photographic tour of its production facilities is presented in a new 20p. catalog. Bulletin No. 5491 is a description of the men, materials, and machines engaged in producing Autocars and tractors. It features illustrations of the research, development, and quality control that go into Autocar units.—The Autocar

**DEEP-WELL PUMPS** — Illustrated bulletin describes complete line of deep-well pumps. Units listed are available in a wide range of diameters, capacities, and heads to make possible a selection of the most suitable unit for any conceivable requirement. Bulletin 49-5000 contains information on the BJ deep-well turbine pumps with bowl assembly sizes for installation in wells from 6 to 24 in., or larger.—Byron Jackson Co., Pump Division, Box 2017, Terminal Annex, Los Angeles 54, Calif.

CRUSHING, SCREENING PLANT -Descriptive folder shows nine views and detailed flow diagram of the 17-V portable crushing and screening plant. Feature of this duplex plant is the exclusive bottom deck feed principle which makes the plant especially applicable to use on small construction jobs and for maintenance work. Folder contains complete specifications and dimensions of the 17-V plant.-Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.



### WITH AN **American Utility Hoist**

Here's your "inside track" for making winning bids. Save costly labor hours on hoisting jobs with a light, speedy, thrifty AMERICAN UTILITY HOIST! It runs all day on a few cupfuls of gas and is operated by one man. Rolls like a wheelbarrow. Sets up anywhere in a matter of minutes.

Handles loads up to 650 lbs. Easy and safe to operate. Order from your distributor, or mail coupon below for literature.



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## SPREADING UP TO 150 TONS PER HOUR



OF COURSE,
IT'S AN
APSCO
BASE
PAVER

Think of it! A two-man crew and this paver can lay up to 150 tons per hour. You can lay more stone—faster! Paver is easily loaded on carryall. Changing width or depth is simple—speedy.

Handles 8' to 12' widths—up to 12" deep. Oscillating screed — dual steering — hydraulic brakes — high speed reverse. Forms not usually required.

### HERE ARE TWO OTHER TIME-SAVERS



### ROAD WIDENER

Run by two man crew—powerfully built. Handles any aggregate to 6" in 2' to 8' strips.



### TRENCH ROLLER

Ideal companion piece for widener. Has pneumatic tired leveling wheel—easily maneuverable.

Write for complete specifications, prices and delivery

ALL PURPOSE SPREADER CO. Elyria, Ohio

PIPE; PIPE FABRICATION—Fourpage reference folder contains complete information on pipe and pipe fabrication. Data is presented on pipe sizes, prices, weights, and dimensions. The Foster pipe includes hydraulic pipe, double extra-heavy pipe, lightweight tubing, and spiral weld pipe. Folder also lists additional literature available on Foster rails, track accessories, steel sheet piling, and wire rope.—L. B. Foster Co., P. O. Box 1647, Pittsburgh 30, Pa.

CONCRETE VIBRATORS—Electric and pneumatic concrete vibrators in a wide range of sizes and styles are described in Bulletin 814. This il lustrated bulletin contains information on vibrator selection, design development, construction advantages, care of equipment, features of operation, and other vibrator data.—Chicago Pneumatic Tool Co., 8 E. 44th St., New York 17, N. Y.

ROAD GRADER, MAINTAINER, TERRACER—Four-page bulletin describes the Husky all-purpose road grader, maintainer, and terracer. Folder features large photograph showing component parts of the Husky Model 33; of the Husky Model 22; and of the goose-neck tractor hitch. Text matter describes the operating characteristics and features of the entire line.—Northfield Iron Co., Northfield, Minn.

STORAGE OF BULK MATERIAL-Techniques for storing and reclaiming bulk material by means of power drag scrapers are described in 36-p. booklet. It is one of a series making up the 200-p. sectional catalog of the Sauerman line of scraper and cableway equipment. Section E, Catalog 19. contains 100 diagrams and illustrations of unusual and conventional materials-handling problems with explanations of their solution. Six pages of specifications and forty illustrations explain the details of the component parts of the scraper equipment.-Sauerman Bros., Inc., 532 S. Clinton St., Chicago 7, Ill.

CRANE, SHOVEL COST GUIDE-Bulletin explains how to estimate cost of ownership, operation, and maintenance of power cranes and shovels. Technical Bulletin No. 2 classifies costs according to fixed costs (depreciation, interest, repairs, maintenance, etc.), operating costs (fuel, oil, and labor), and other costs (indirect or overhead, supervision, etc.). The bulletin describes each of these in detail, as well as explaining how to compute them.-Copies of this 24-p. pamphlet are available at 50¢ each. Complimentary copies are available for engineering schools.-Power Crane & Shovel Association, 74 Trinity Place, New York 5, N. Y.

# All-New and ...

# Just as Rugged as They Look



There's a new look in heavy duty trucks... all-new "H" line GMCs. These great new trucks, in weight ratings from 19,000 to more than 90,000 pounds, pace the entire heavy duty field in styling that adds to the prestige of your business. And they pace the field in design and engineering that give you better performance, lower operating costs, longer life.

Four new gasoline engines offer greatly increased power, in addition to traditional GMC extra value . . . famous four- and six-cylinder GM 2-cycle Diesels have higher compression for even greater agility and economy. New, stiffer, straight side rail frames, new wide-track axles, new broad-beam, extra comfort cabs . . . new features by the score make all-new GMC "H" models best for all heavy construction and oil field transport. Let your nearest GMC headquarters give you complete details.

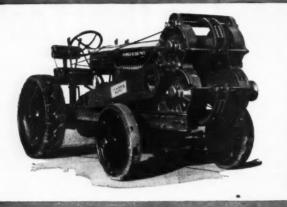
GMC TRUCK & COACH DIVISION . GENERAL MOTORS CORPORATION

GAC TRUCKS BUMPER-BUILT FRONT END



Typical of GMC "H" line ruggedness are anglebraced, frame-mounted radiator grilles with top and sides of spring steel bumper stock, heavy gauge fenders, wide, thick bumpers . . . for complete front end protection, axle to emblem.

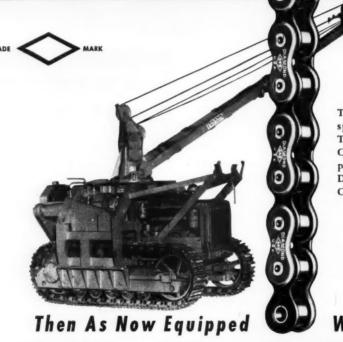
## On This Trackson "Old Timer"





Diamond Roller Chain Drives had to be rugged on this heavy forerunner of Trackson equipment.

## and Modern CD4 Swing Cranes



This compact highspeed late model Trackson Swing Crane is also equipped with durable Diamond Roller Chains.

With

DIAMOND ROLLER CHAINS

DIAMOND CHAIN COMPANY, INC. Dept. 418, 402 Kentucky Avenue, Indianapolis 7, Indiana

SILICONE GREASES — Silicone greases as ball-bearing lubricants are described in two new publications. Silicone Notes No. D.5 lists properties, performance, and uses of these heat-stable and oxidation-resistant silicone lubricants. Notes No. D.6 contains information on how to use DC 44 silicone grease in the bearings of electric motors. Data sheets contain complete test data on operating characteristics and physical properties of silicone greases.—Dow Corning Corp., Midland, Mich.

FORGED • STEEL CASTERS—Forged-steel precision-type, heavy-duty casters in 5-, 6-, and 8-in.-dia. wheel sizes are described in a 4-p. bulletin. This bulletin contains photographs of the component parts comprising the caster—the forged-steel top plate, heavy-duty mainload bearing, one-piece forged-steel horn, Timken thrust bearing, slotted nut for precision adjustment, and forged-steel wheel. Illustrations and specifications are given for eight types of swivel and rigid casters, for carrying loads as high as 10,000 lb. per caster.—The Bassick Co., 437 Howard Ave., Bridgeport, Conn.

LONGER PUMP SERVICE—An 8-p. booklet, "How To Get Longer Service From Your Pumps," discusses four factors that affect pump life and performance. These are corrosion, corrosion-fatigue, erosion and wear. Definite case histories are cited in connection with exposure to such destructive influences as sewage, brackish harbor water, sour crude petroleum, marine growth, high pressures, and grit as well as combinations of these influences.—The International Nickel Co., Inc., 67 Wall Street. New York 5, N. Y.

RIGID-FRAME BUILDINGS—Illustrated, 8-p. catalog describes Rigid-steel design principle for economical building construction. This design affords speedy construction without a network of trusses. Special applications for industrial, municipal, or commercial buildings, with conventional or eccentric design, are discussed in detail. —McCloskey Co. of Pittsburgh, 3400 Liberty Ave., Pittsburgh 1, Pa.

EXPLOSIVES HANDBOOK—Pocket-size handbook contains 40 pp. of information about explosives. This guide presents detailed information on the characteristics of various types of explosives, together with a useful table of "Explosives Recommended Under Average Conditions". In addition, a reference guide is provided for assistance in determining quantities of explosives required in specific applications.—Illinois Powder Mfg. Co., Dept. JM, 730 Pierce Bldg., St. Louis 2, Mo.



STEEL PILING

No waiting for deliveries. You can start right now, saving time and money with Caine Corr-Plate Steel Piling. It's quicker, easier to transport (nestable). Easier to handle, set and drive; can be used over and over again. Also available in new, stronger steel alloy which is doubly resistant against rust or corrosion. Used all over the world in excavation and construction of foundations, dams, retaining walls, docks, levees, bulkheads, sewers, disposal plants, etc.

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When concrete is MASTER vibrated it settles down to greater density with more uniform strength. It grabs hold of steel or successive layers and really stays put without cracking or shrinking. All these results can be achieved with leaner and drier mixes. And best of all forms can be removed earlier—hand tamping and spading are eliminated. For complete specifications and prices of phase to the MASTER Vibrators, write, wire or phase today for catalog No. 783C.



MASTER VIBRATOR COMPANY

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Western

#### Western Reconnaissance Transit

H ERE IT IS — back in production with many improvements. The Western Reconnaissance Transit, while low in price, is a high quality instrument designed to serve many engineering and surveying purposes. Capable of distant and close focusing.

It is a standard instrument of precision, of the same exacting construction as our Engineers' Transits.

SPECIFICATIONS — No. 7064 TRANSIT TELESCOPE: 9½" achromatic terrestrial. Coated opties. Objective lens with effective aperture 1.14!" — Internal focusing, erecting eyepiece with improved spiral movement for stadia wires. Magnifying power 20 dia. Stadia wires fixed ratio 1:100 reading direct from center of instrument, the constant (f+c) negligible. Ground spirit level to scope, graduated 5" long; esnstitiveness 60 seconds. Improved Clamp and Tangent Screw with counter spring.

VERTICAL CIRCLE: 4" dia, graduated to ½ degrees on solid silvet, with double direct vernier reading to one minute, removable aluminum guard to circle. COMPASS: Gold plated needle about 3½". Compass ring beveled graduated on solid silver to half degrees, numbered in quadrants. Compass box watertight, with variation ring.

HORIZONTAL LIMB: 5-5/16" dia. Graduated on solid silver to ½ degrees, numbered 0°-560° in two ways, with double-direct venier reading to one minute, ivory hinged reflector — two fine spirit levels, sensitiveness about 75 seconds.

CENTERS: Bronze anti-friction alloy, extra long and fitted. Shifting center. Improved clamp and tangent, clamp and leveling screws of nickel silver. FINISH: Black morocco enamel and lacquer.

EQUIPMENT COMPLETE: Strong aluminum base plate, sun shade, plumb bob, magnifying glass, adjusting pins, screw driver, oil can and brush packed in polished hardwood case, Full length split-leg tripod, 3½″ 8 thread standard.



SOIL-TESTING APPARATUS — Specification sheets describe complete line of soil-testing equipment, including unconfined compression devices, McRae motorized soil lathe, tri-axial shear apparatus, sample ejector, consolidation specimen trimmer, power hack saws, soil-mixing machines, compaction mold, standard rammer, Consolidometer, rotary trimming tools, permeameters, Tyler sieves, and others. Descriptions of operation, construction, and advantages are provided for each device.— Soil Testing Services, Inc., 730 Madison St., Evanston, III.

FORK ARMS FOR DOZERS—Fork arms for extending the use of bull-dozers are described in a 4-p. bulletin. The purpose of these arms, described in detail in the bulletin, is to convert the dozer blade into a carrying unit for moving supplies, materials, and small equipment over difficult terrain. The bulletin describes the action of the fork arms, and explains how they can be quickly attached or removed.—The Parkersburg Rig & Reel Co., Parkersburg, W. Va.

HEAVY-DUTY MOTOR TRUCKS—Big broadside describes the GMC line of heavy-duty trucks. Detailed specifications are presented for the H Series 520, 600, 620, and 650 trucks. Specifications cover gross vehicle weights, engines, chassis, axles, standard equipment, tires, etc. Color drawings are used to show typical uses for the H Series of GMC trucks.—General Motors Corp., GMC Truck & Coach Div., Pontiac, Mich.

PIPE INSULATION - Complete information on Kaylo pipe insulation is presented in 4-p. folder. In addition to illustrations and physical data about the product, the folder lists standard sizes and thicknesses, recommended thickness for various pipe sizes and temperatures, heat losses, efficiencies, and surface temperatures. The folder also explains how the simplified dimension standards of Kaylo pipe insulation make it possible to build up multiple layers of insulation, and thus reduce inventory problems. - Owens-Illinois Glass Co., Kaylo Division, Box 1035, Toledo 1, Ohio.

HARD-FACING GUIDE BOOK—Revised edition covers applications of hard-facing alloys in heavy industry. Provides detailed information on choice and application of various hard-facing metals commonly used in heavy construction, cement plants, dredging, rock-products plants, and similar operations. Approximately 100 common uses for hard metals are described, including their method of application and approximate amounts required for specific jobs.—Stoody

Co., Whittier, Calif.





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Phones Melenie 5.7704-5 &

WOOD PRESERVATIVES — New folder, just issued, presents information on a complete line of wood preservatives and insecticides. Designed to present general information on several Chapman products, including Penta preservative, Ambrocide, Permatox 10-S, and Permatox WR, the bulletin has been printed both in English and Spanish.—Chapman Chemical Co., 770 Dermon Bldg., Memphis 3, Tenn.

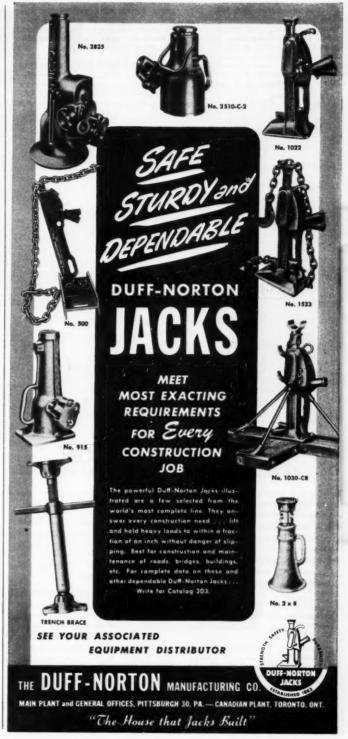
THE ABC's OF INDUCTION MOTORS—A special 32-p. issue of the E-M Synchronizer covers the basic theory, operation, characteristics, applications, and control of large induction motors. Synchronizer No. 28 presents a comprehensive, practical, fact-filled treatment of squirrelcage and wound rotor motors.—Electric Machinery Mfg. Co., 1331 N. E. Tyler. Minneapolis 13. Minn.

AUTOMATIC SLOPE METER—Bulletin describes Slope Meter for use in making accurate grades and slopes. This device is recommended for use on all sizes of tractors, bull-dozers, scrapers, and graders. Bulletin explains how the Slope Meter works, and contains complete information on how to install it on any piece of equipment.—Wm. H. Ziegler Co., Inc., 2929 University Ave., S. E., Minneapolis, Minn.

DRAWING PENCILS—New catalog and price list covers pencils of all types including thin lead, thick lead colored, colored indelible, and colored hectograph. Also described are the Staedtler's Mars-Lumograph drawing pencil, Mars-Lumograph artist pencil, artist lead, and many types of refill leads.—J. S. Staedtler, Inc., 53 Worth St., New York, N. Y.

DRAINAGE STRUCTURES-Booklet is of interest to anyone connected with specifying or designing drainage structures. Entitled "Engineering Data-Toncan Sectional Plate Pipe, Pipe-Arch, Arches," it contains essential design and estimating information on corrugated sectional plate drainage products. This compact, 16-p. manual includes tables on minimum gages for strutted and unstrutted pipe, length and spacing of struts, standard sizes of arches, weights of various products, and plate arrangements.-Republic Steel Corp., 3100 E. 45th St., Cleveland 4.

CONCRETE ACCESSORIES—Catalog is composed of eight sections devoted to various styles, types, and sizes of form-tying devices and other accessories for concrete construction. Charts, pictures, and word descriptions explain the proper selection and use of each item in the Richmond line. This fact-packed manual in(Continued on page 144)



(Continued from page 143) cludes important construction details, engineering data, and information on how to order items listed. An entire section is devoted to engineering factors and methods essential to good concrete construction.—Richmond Screw Anchor Co., Inc., 816 Liberty Ave., Brooklyn 8, N. Y.

MIXER DRUM ROTATION—A description of the V-belt theory as applied to mixing drum rotation is included in a 4-p. bulletin calling attention to important improvements in the design of the Kwik-Mix 3%-S non-tilt Dandee concrete mixer. The maker claims the elimination of

gears or sprocket and chain will reduce maintenance costs and give smoother and more silent operation. —Kwik-Mix Co., Koehring subsidiary. Port Washington. Wis.

CONCRETE HAULING, PLACING
—Pamphlet (8-pp.) is full of on-thejob pictures of non-agitating delivery
and placement of air-entrained concrete. Bulletin L-106 describes how
Dumpcrete saves on original purchase price, on daily maintenance,
operation, and upkeep, and lists how
concrete delivered in Dumpcrete can
be controlled for specification work.
Pamphlet also describes how Dumpcrete can be converted to use in

hauling bulk cement, earth, mortar, or similar materials.—Dumperete Division, Maxon Construction Co., Inc., Ludlow St., Dayton 2, Ohio.

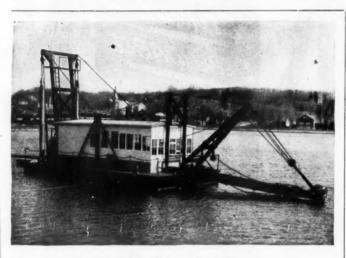
WELDING EQUIPMENT—Catalog No. 140, a comprehensive guide for the welder, covers every type of equipment necessary for all acety-lene and oxygen operations. Contains more than 150 illustrations. Each piece of equipment is described in detail.—Modern Engineering Co., Dept. 110, 3415 W. Pine Blvd., St. Louis 3, Mo.

STEEL FORMS FOR CONCRETE-How to use Atlas speed forms is discussed in a 40-p. informative catalog featuring a description of several projects in which the Atlas steel forms were used in the construction of walls, floors, columns, dams, manholes, and circular tanks. Information is presented on how the forms were designed for these various structures, and photographs are used to show them being erected. A data sheet contains detailed specification on the construction of the forms themselves .- Irvington Form & Tank Corp., 43 Cedar St., New York 5, N. Y.

MILD - STEEL WELDING GUIDE—Weldirectory 462 is guide for selection of electrodes for welding mild steel and low-alloy high-tensile steels. Tables list physical properties, AWS class, electrode number, color of coating, and P or S markings for each unit in the Lincoln line. Text provides complete information on how to use each electrode, the polarity to use, position of the joint, arc length, and other pertinent data for operators.—The Lincoln Electric Co., 12818 Coit Road, Cleveland 1, Ohio.

BUTT-JOINT PANEL FASTENER
—Illustrated folder, (4 pp.) describes
the Roto-Lock, a new butt-joint panel
fastener. Applications of Roto-Locks
are shown in portable shelters, scaffolding, partitions, and others. Large,
dimension drawings, load rating tables, and cut-away views of the
fastener in operation complete the
folder.—Simmons Fastener Corp.,
North Broadway, Albany 1, N. Y.

METAL LATH: STEEL BUILDING PRODUCTS - Product description and information on USG metal lath and steel building products are contained in a new 12-p. catalog. Also, information on how to apply laths, how to estimate quantities, and miscellaneous information on tie and hanger wire, lathing nails, and hotrolled vs. cold-rolled channels. In addition to describing the complete USG line of laths, Catalog ML-20 also lists Trussteel studs, metal arches, triple-vent basement sash and screens, aluminum louvers, and coal doors .- United States Gypsum Co., 300 W. Adams St., Chicago 6, Ill.



## Portable Dredge keeps two reservoirs free of silt!

The Corps of Engineers, U. S. Army, needed a portable dredge to remove accumulated silt from several reservoirs of the Washington Aqueduct water supply division which is an integral part of the Washington, D. C. water system. The operating machinery, consisting

of the dredging lad-Complete Line der, dredging pump, of from 6 to 30hauling and hoistinch dredges for ing machinery (deall requirements. 64 Years of signed and built by Experience Ellicott for this with hydraulic 8-inch hydraulic dredges. Undivided dredge and placed Responsibility on a hull of Navy designed, built, delivered under one contract.

Proved

in the U.S.A.

and abroad.

wartime cubes) met the requirements of the U.S. Army Engineers to a "T".

The dredge is *portable* . . . can be easily disassembled for shipment by truck from one land-locked reservoir to another. And, *operation is clean* . . . electric operation keeps deleterious substances out of the water.

If you have a dredging problem, see Ellicott first! Only Ellicott is equipped to design and build, in its own plant, any size, any type dredge for any kind of service. Write for free bulletin 780. ELLICOTT MACHINE CORP., 1605 Bush St., Baltimore 30, Maryland.

ELLICOTT Hydraulic Dredges

LINK-BELT SPEEDER

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With Speed-o-Matic Hydraulic Controls





#### FINGER-TIP CONTROL THAT BOOSTS OUTPUT UP TO 25%

Fast acting, effortless Speed-o-Matic control banishes operator fatigue, keeps output at peak throughout entire shift. Operator has "feel" of the load at all times! For the first time, you are offered a half-yard shovel-crane with the timetested, performance proved Speed-o-Matic controls, formerly available only on 1½ yard or larger machines. Speed-o-Matic hydraulic control, plus complete modernization of all construction details, puts the LS-51 in a new class of construction machinery. Faster operating cycles, precision control of every movement, elimination of operator fatigue will boost production up to 25% over manually controlled shovel-cranes of the same rating. Absence of mechanical linkage simplifies servicing and greatly reduces maintenance.

Visit your nearby Link-Belt Speeder distributor. See for yourself the numerous features that make the LS-51 a new yardstick for measuring half-yard shovel-crane performance.

LINK-BELT SPEEDER CORPORATION.

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#### \*FOR ACCURATE, FAST, COMPLETE CONTROL

An attachment for handling 8 inch diameter standard testing sieves provides uniform and exceptionally rapid results on sand samples.



## GILSON Mechanical Testing Screen

Whether it be field or laboratory testing, accurate proportioning of coarse and fine aggregates for all types of construction is essential.

You can definitely control the accuracy of your mixes and the accuracy of your production of aggregates on the job by using a Gilson Testing Screen.

Specify a GILSON Testing Screen for fast, accurate sizing of coarse and fines from 4" to 200 mesh. It handles samples up to one cubic foot.

GILSON SCREEN CO. MERCER, PENNA.



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STOPS MOISTURE FROM FALLING

No.	O.D. Exhaust	Retail
1	21/4"	\$1.90
2	236"	1.90
3 5 55	237"	1.90
5	13%"	1.90
55	2"	1.90
5x	134"	1.90
6	112"	1.90
66	138"	1.90
7	21/2"	1.90
8	3"	2.50
9	31/4"	2.50
10	31/4"	2.50
11	31/2"	2.75
115	334"	3.00
12	4"	3.00
123	41/8"	3.00
125	41/4"	3.00
14	41/2"	3.00
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THE CAP THAT DOES NOT FORGET TO CLOSE Completely automatic — the "RAIN-CAP" is counterbalanced to open when the tractor starts and close when it stops. Rust proof—made of cast aluminum—with bronze bushing—can be installed in two minutes. F.O.B. Waterloo, Iowa.



WATERLOO FOUNDRY CO., WATERLOO, IOWA

concrete Additive — Data sheet describes how Dicalite helps produce a uniform concrete, increases ease of handling, placing, and finishing, and results in an improved concrete. Dicalite is a lightweight, powdered material, packaged in bags, and added at the mixer with other dry materials.—Great Lakes Carbon Corp., Building Products Division, 18 E. 48th St., New York 17, N. Y.

MINNEAPOLIS - HONEYWELL DATA-Four new catalogs have been issued by the Minneapolis-Honeywell Regulator Co. Bulletin No. 700-1, 31 pp., describes the Series 700 diaphragm control valves. Bulletin No. 242-1, 20 pp., describes the Hi-Lift V-port indicating-type hand-control valves and supplies information on determining valve sizes, as well as capacity charts for liquids, air and gases, and steam. Bulletin 48-1, 32 pp., describes direct-connected and air-actuated liquid-level controlled. Bulletin No. 10-1 describes several types of regulating valves for water, steam, air, gas, or oil.—Minneapolis-Honeywell Regulator Co., Belfield Valve Div., Wayne & Roberts Aves., Philadelphia 44, Pa.

ANTI-BACTERIAL CEMENT—Folder explains how anti-bacterial cement can be used to make concrete that actually kills bacteria and fungi on contact. The folder lists results of laboratory tests conducted on concrete made from this cement—tests for both its anti-bacterial properties, and for its structural properties as a standard concrete—North American Cement Corp., 41 E. 42nd St., New York 17, N. Y.

**ELECTRICAL CONNECTIONS—An** 8-p. catalog describes the Cadweld process for electrical connections, a method of welding copper to either steel or copper, in which no outside source of heat is required. These connections are not subject to the gradual loosening or corrosion of mechanical joints, have a current carrying capacity equal to or greater than the conductor, and are made with lightweight, inexpensive equipment, and no special skill is required for their use. Well illustrated, the catalog shows the various types of welders together with equipment requirements for such connections as: formed terminal: horizontal and vertical surfaces; "T" and ground-Electric Railway Improvement Co., 2070 E. 61st Place, Cleveland, Ohio.

STEEL STREET FORMS—A 28-p. booklet solves the problem of selecting and using the proper paving form for making any type of concrete curb, curb and gutter, integral or special curb, or sidewalk.—Blaw-Knox Div., Blaw-Knox Co., P. O. Box No. 2, Blawnox, Pa.

PILE-DRIVING EQUIPMENT—This 120-p. catalog contains information on pile hammers, pile extractors, and complete piledriving rigs. It de-scribes single- and double-acting hammers, double-acting extractors, and many different types of rigs for use on land and water. More than 140 illustrations are used to show the equipment in use handling concrete. steel, and wooden piles. Engineering information includes formulas for bearing power of piles, selection data, complete specifications, dimensions, parts lists, operating and maintenance data instructions, and drawings of details, operating setups, and rigs. — McKiernan-Terry Corp., 14 Park Row, New York 7, N. Y.

STEAM HOSE—Improvements in the Inferno line of steam hose are listed in a 4-p. folder which describes heat-resistant carcass composed of multiple layers of tightly braided galvanized steel wires; the special construction which causes steam to be diffused instead of violently escaping should the hose be damaged; the tough, red cover, and the flexibility and ease of handling. The Inferno hose is made in all sizes from ½ to 2 in. inside dia., and in maximum lengths of 50 ft.—Goodall Rubber Co., Whitehead Road, Trenton 4, N. J.

CATERPILLAR BULLETINS-Five new bulletins have been released by the Caterpillar Tractor Co. Form No. 12112 is a 12-p. booklet entitled "Let's Take a Look at Your Caterpillar Dealer," which graphically illustrates workings of the Caterpillar worldwide distribution organization. Form No. 12258, entitled "Caterpillar Motor Graders Do the Job," is 16 pp. in length and features a description of the use of graders in precision ditching, bank shaping, general road maintenance, mixing road surfaces, terracing, and snow removal. Form No. 12260, entitled "Saving Tax Dollars With Caterpillar Equipment," is 16 pp. in length and is dedicated to those who use equipment in connection with public works. Form No. 12311 features a complete package of heavy-duty equipment which is Caterpillar-powered from slope stake to final grade. Form No. 12312 highlights forty years of experience in grader design by the company. It is 8 pp. in length, and is entitled "Contracting with 'Cat' Motor Graders."-Caterpillar Tractor Co., Peoria 8, Ill.

STEEL PRODUCTS—Wide range of steel products is listed in three catalogs issued by Ceco. Bulletin No. 4002A is a handbook of products for reinforced - concrete construction; Bulletin No. 3002-A describes the Ceco line of steel joists; and Bulletin No. 3003 describes a complete line of steel roof decks. All three bulletins contain engineering and de-





# IN STATIONARY AND PORTABLE CRUSHING PLANTS UNIVERSAL BASIC UNITS MEAN —— MYPH AT LCPY

#### MORE YARDS PER HOUR AT LESS COST PER YARD

#### UNIVERSAL JAW CRUSHERS

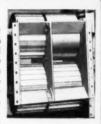
With overhead eccentric principle originated by Universal. Force feed, force discharge. 4 types with plain or roller bearings. Tough re-



versible manganese steel jaws, simple adjustment for product size. A size and capacity to meet every need. Series "SL" Streamline illustrated. Bulletin 100B.

#### UNIVERSAL TWINDUAL ROLLS

Exclusive with Universal 293-Q Portable Quarry Plant, the Twin Dual Master Gravel Plants, and TwinDual Secondary Plants. Two stages of secondary reduction with one crusher. Permits up to 100% wider primary discharge opening. Amazing capacities and lower maintenance cost. Bulletins 31AA,682A and U30S.



#### UNIVERSAL

For profitable production of aglime and road rock up to 1½ inch. Roller bearing, welded steel plate construction. Manganese steel hammers and liners. Made in 4 sizes with capacities up to 100 tons per hour. Ask for bulletin 55B.



#### UNIVERSAL

Sectional lattice or channel types. Rigid construction,



easy to set up. Anti-friction bearings throughout. Troughing rolls and return idlers are equipped with sealed-for-life bearings. Self-cleaning pulleys are provided where needed to protect belts. Available in multiples of 4' lengths in 18, 24, 30, and 36 inch belt widths. Portable type has hydraulic hoist truck. Ask for Bulletin 46-7A.

#### UNIVERSAL DOUBLE ROLL SECONDARY CRUSHERS

Star gear final drive. Roller bearings, manganese steel roll shells. These crushers feature simplicity of design,



greater capacity, double safety against tramp material, easy adjustment for product size, and strength for the toughest jobs. Built in sizes to meet every secondary crushing requirement. Bulletin 6B.

#### UNIVERSAL TROUGHING ROLLS

Made of heavy seamless steel tubing with end sections rolled in place. Self-aligning shaft locked in position. Mounted on a combination welded and pressed steel base and brackets. Anti-friction sealed-for-life bearings. A complete line of conveyor parts for new construction or repairs. Details in Bulletin 46-7A.

Other Basic Units available include: GYRATING AND REVOLVING SCREENS, ROTOVATOR, SCRUBBERS, SAND SCREWS, LOG WASHERS, STEEL BINS, AND APRON FEEDERS

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OTHER PETTIBONE MULLIKEN PRODUCTS









GEORGE HAISS MFG. CO., INC.

(Continued from page 147)

sign data for users of these products, and are thoroughly illustrated with photographs of typical installations.—Ceeo Steel Products Corp., 5601 W. 26th St., Chicago 50, Ill.

CRANE CARRIAGE—An illustrated folder gives a full description of a one-man self-propelled mounting for all makes of cranes of from 10- to 25-ton capacity. Propulsive power is obtained through the travel clutches and vertical travel shaft of the crane. It is equipped with a 4-speed transmission with a speed range of 2 to 10 mph. in either direction. There is complete control of the entire machine from the operator's seat. Short turning radius. Air brakes on all wheels, hydraulic steering.—Keystone Driller Co., 419 Wood St., Pittsburgh 22, Pa.

JAEGER EQUIPMENT — Catalog GC-9 describes the complete line of Jaeger equipment including pumps, compressors, mixers, paving machinery, truck-mixers, towers, and hoists. Each item is illustrated, text matter describes its operation, and tables provide detailed information on the specifications and capacities of the various sizes in which each type of equipment is manufactured.—The Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio.

SECTIONAL CONVEYOR — This eight-pager illustrates and describes the Haiss Model 487 section conveyor used with flat belt or trough belt on any type of portable or stationary mounting. It is engineered for versatility with low-cost standardized sections of either lattice- or channel-frame construction. Bulletin H487 contains complete specifications for the basic unit, as well as a complete line of conveyor accessories.—George Haiss Mfg. Co., Inc., Div. of Pettibone-Mulliken Corp., 141st St. & Park Ave., New York 51, N. Y.

DRY-CUTTING MASONRY SAW—Four-page bulletin describes features and operation of Fireproofer dust-free, dry-cutting masonry saw. The bulletin describes advantages said to accrue through the use of dry cutting, shows features of the patented adjustable cutting table, and lists complete specifications for saw and power unit.—Martin Fireproofing Corp., 2120 Military Road, Buffalo 17, N. Y.

WORM-FEED STOKERS—Bulletin S-41 contains 8 pp. of information on Type F Worm-Feed stoker. Featured in bulletin is description of special oil-level cup which gives warning of water in gear case due to vapor condensation or other causes. Also described is adjustment whereby belt can be shifted easily from one pair (Continued on page 150)

## Two New Sizes in "BOSS" Self-Honing AIR VALVES



The Finest Air Valve Ever Built, Now Available in 1½" and 1½" I.P.T. Female Both Ends

Here's the answer to maximum efficiency and economy on large size air hose control points—on manifolds, jumbos, etc. Self-honing, self-adjusting, quick-opening, full flow, no packing. Forged steel handle anchored to bronze plug inside

the malleable iron valve body, providing unequalled strength and durability. Other sizes: ½", ¾" and 1", with male or female I.P.T. both ends; 2" female both ends . . . with the same quality characteristics that have made "Boss" Valves the unquestioned leaders in their field.

#### "BOSS" COUPLINGS For Steam, Water, Large Size Air Hose



"GJ-BOSS" Coupling Style X-34

"'G-J BOSS' Ground Joint Female Coupling, Style X-34 Washerless construction, with ground Joint unton between stem and spud forming leakproof softchard metal seal. No worn or to-hard metal seal. No worn or nished with "Bos" toffset and Interlocking Clamps. Cadmium plated—rustproof. Sizes <sup>1</sup>/<sub>4</sub>" to 6".

"BOSS" Wosher Type Female Coupling, Style W-16 Same as "GJ-Boss" Style X-34, except that seal between stem and spud is made by washer instead of ground joint union. Sizes 34"

> "BOSS" Male Coupling Style MY-16

Companion to "GJ-BOSS" are "BOSS" Female Couplings, and famous for strength, safety on all high or low pressure hose. Complete coupling consists of corrugated stem with hex for wrench, and powerful "Boss" Offset and Interlocking Clamp. Sizes 14" to 6".

#### Other DIXON Quality Line Products for Contractors:

"King" Shank Couplings; "King" Combination Nipples; "Boss" and "Dixon" Air Hammer Couplings, ground foint and washer types; "Air King" and "Dix-Lock" Quick-Acting Hose Couplings; "King" Single and Double Rolt Hose Clamps; miscellaneous menders, sipples and other fittings.

Sold by Manufacturers and Jobbers of Mechanical Rubber Goods.

IF IT'S A DENON PRODUCT

IT'S DEPENDABLE

# VALVE & COUPLING CO. Main Office and Factory: PHILADELPHIA, PA. BRANCHES: CHICAGO · BIRMINGHAM · LOS ANGELES · HOUSTON

(Continued from page 173) of sheave grooves to another for changing speeds. Information is provided on the complete line which includes models in seven capacities, and three styles of retorts.—The Brownell Co., 422 N. Findlay St., Dayton 1, Ohio.

HOISTING EQUIPMENT—Catalog, 16 pp., describes complete line of hoisting equipment including gas, electric, and hand-powered derricks, hoists, and winches; contractors' material elevators and hoisting equipment; swing-stage scaffold winches, and truck derricks. Also listed are snatch blocks, sheaves,

iron-strapped wood blocks, oval steel blocks, hooks, clamps, and tongs, and other accessory equipment.—Sasgen Derrick Co., 3101-27 Grand Ave., Chicago 22, Ill.

CARE OF CENTRIFUGAL PUMPS
—Revised handbook provides 16 pp.
of information on the care of all
makes of centrifugal pumps. It lists
the how and why of pump construction, tells how to compute heads, and
lists causes and cures for various
sources of troubles. Bulletin 08X6256A contains a table for determining friction loss, and a maintenance
time-table. Other subjects covered in
the bulletin include little-known

facts about cavitation and how to protect pumps from its effects; water's role as a lubricant in pumps; and common mistakes in packing stuffing boxes.—Allis-Chalmers Mfg. Co., 1018 S. 70th St., Milwaukee, Wis.

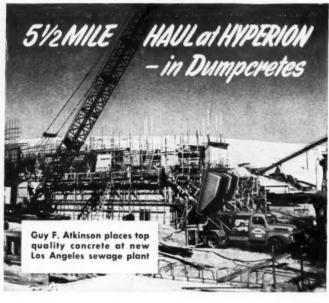
GROUTING EQUIPMENT — Equipment for pressure grouting by the Weber system is described in a 4-p. bulletin just issued. This catalog describes the type of work which can be performed by pressure grouting, describes the method employed and the equipment used, and contains other pertinent information. The catalog is illustrated with photographs of several jobs completed by the company.—The Presscrete Co., Inc., 243 Graybar Bldg., New York 17, N. Y.

SPROCKET CATALOG — The enlarged line of Diamond sprockets and single- and multiple-strand roller chains are listed in Catalog No. 709 which describes the various items carried in stock by Diamond's nationwide distributor organization. Appropriate data for selection of sprockets and chains is given, plus illustrations, dimensions, and prices. — Diamond Chain Co., Inc., 402 Kentucky Ave., Indianapolis 7, Ind.

PORTABLE ELECTRIC TOOLS—Four-page circular describes all models of Thor Silver Line portable electric tools. These include drills, grinders, polishers, impact wrenches, and saws. Brief specifications are listed for each tool, as well as accessories which can be used with it.—Independent Pneumatic Tool Co., 175 State St., Aurora, Ill.

SIX WHEELERS IN ACTION—Is the title of a descriptive booklet which dramatizes the ever-growing importance of 6-wheel trucks and features a description of the diversified uses of the six wheelers. Text matter is confined almost exclusively to the 2-p. introduction, which contains essential information about 6-wheel trucks and their advantages and history. — The Timken-Detroit Axle Co., 100 Clark Ave., Detroit 32, Mich

PORTABLE COMPRESSORS—Portable compressors, with gasoline or diesel power units, are the subject of a 20-p. catalog. Bulletin No. 748 contains information on diesel-powered units having capacities varying from 105 to 500 cfm; gasoline powered, from 60 to 315 cfm. Catalog contains detailed descriptions of various features claimed for CP units; contains a chart of compressor efficiency; and has a chart for use in selecting proper size portable air compressor for a specific job.—Chicago Pneumatic Tool Co., 8 E. 44th St., New York 17, N. Y.



Dumpcretes gave Guy F. Atkinson a lowcost answer to a concrete hauling problem at the new 41-million-dollar Hyperion job.

He wanted to mix at a central plant, where he could produce uniform air en-

trained concrete. He found an ideal site—right on a railroad siding—but it was 5.7 miles from the pour. So he needed a hauling unit that would maintain a constant slump and air content

The lower cost Dump

crete is lightweight, watertight, with 13foot chute, controlled

higher discharge and lower center of grav-

ity. Hauls sand.

gravel, and coal too. Available in 2, 3, and

4 yard sizes.

on a haul this long. Dumpcretes were the answer.

Normal hauling time is 20 minutes. But the City of Los Angeles stamped "OK" on his top quality, Dumpcrete-hauled concrete, even after 45 minutes from plant to discharge.

Five Dumpcretes handle the entire production of the 2-yard plant. When pours are held up, they haul sand, so they "earn their pay" every day.

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## **MEASURING SATISFACTORY PERFORMANCE**

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## RUBBER Products



## ... IN EVERY TEST!

## QUAKER PACKINGS ARE PRE-TESTED TO ASSURE PERFECT FIT

A packing that doesn't fit accurately results in a loss of air, water, steam or power... and maintenance time. That's one of the reasons Quaker Packings are pre-tested as many as 18 times to assure satisfactory performance in every installation wherever they are used throughout the construction industry.

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To keep equipment on the job specify Quaker Pre-Tested Packings. They are pre-tested for quality . . . performance proved throughout the construction industry of America.

#### HOSE THAT LASTS



Belts for conveying material or transmitting power . . . Quaker has the right one to fit every

FOR PEAK PRODUCTION

power . . . Guaker has the right one to file every need in the construction industry. Pre-tested balts that assure peak efficiency and maximum production under all operating conditions.

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GUAKER PACIFIC RUBBER CO - San Francisco 10 - Los Angeles 21 - Seattle 4.



SAFER, FASTER ACTION
SAVES TIME AND MANPOWER

Maximum power and safety! Easier, faster operation! Greater versatility! Longer service! These are the qualities that put Simplex Ratchet Lowering Jacks at the top of the list today for safe savings on construction jacking.

Simplex engineering gives these Simplex Jacks the foolproof advantages of a smooth, positive working ratchet and pawl mechanism with adjustable cadmium plated springs, plus rugged construction at every point that adds years to jack life. All models lift full capacity on cap or toe. Capacities from 1½ to 35 tons. Send for Butletin: Industrial 49.

SIMPLEX HYDRAULIC JACKS

NEW DESIGN! NEW EFFICIENCY!

Here's Simple or ver maxim packin pump control capacity over maxim pump capacity over maxim pump control capacity over maxim capacity ov

Model 100 HJ 100 Tons Cop. Here's easy acting, safe hydraulic jacking power. Simplex Hydraulic Jacks operate in either horizontal or vertical position; are easily portable and produce maximum power with minimum weight. High pressure packing seals of Neoprene; single pump (or double pump on larger capacity models) action; spring controlled, non-sticking valves. Eight models in capacities from 3 to 100 tons. Safety tested to 50% over rated capacities. Send for Bulletin: Hydraulic 48.

1899

TEMPLETON, KENLY & COMPANY
1008 South Central Ave., Chicago 44, Illinois

Jacks

Two new pump catalogs describe a line of self-priming centrifugals, and vertical turbine pumps. Bulletin W.395-B1 illustrates four typical centrifugal pumps, and describes their advantages and recommended uses. Also listed, are tables of pumping unit and engine data. Bulletin H.450-B35 features a cutaway drawing showing how the vertical turbine pumps are constructed and how they operate. Standard specifications are listed for the complete line. — Worthington Pump & Machinery Corp., Harrison, N. J.

TRANSITE PRESSURE PIPE—"Engineering Facts about Transite Pressure Pipe", a 12-p. booklet, just released, presents informative data about this asbestos-cement pipe, covering such features as its carrying capacity, tight, flexible joints, long-life expectancy, and similar subjects. Photographs and text provide documented answers to often-asked questions about the pipe. The booklet contains tables on Transite pipe weights and dimensions. — Johns-Manville, 22 E. 40th St., New York 16. N. Y.

SNOW-PLOW CATALOG -- Now is the time to think about plows and other equipment needed for proper snow removal-not in the winter when the "heat's" on. A timely catalog is now available covering a complete line of truck-mounted snow plows. This 24-p. catalog, No. 1002, is profusely illustrated with large views showing design and construction of complete line of Baker plows. Complete dimensions and specifications are listed to enable user to determine exact plow to meet his requirements.-The Baker Mfg. Co., Springfield, Ill.

ALUMINUM ROOFING—"How to Apply Kaiser Aluminum Roofing" is subject of a new folder. Sketches and text provide information and instructions for the application of corrugated aluminum roofing to new and old buildings.—Permanente Products Co., Kaiser Bldg., 1924 Broadway, Oakland 12, Calif.

POWERED HOLE DIGGER—Bulletin (8 pp.) features description of improved Williams hole digger. New features include hydraulic control for raising, lowering, and leveling; turntable bases with 270-deg. turning radius; and hydraulic fore-andaft sliding motion of approximately 18 in. Bulletin 149-A contains complete specifications and operation characteristics.—Hugh B. Williams Mfg. Co., 2946 Oak Lane, Dallas, Tex.; or Joslyn Co. offices in principal cities.



C. B. McCleary, fleet owner (center), discusses lubrication practices with Standard Oil's O. H. Collier and B. King (at the right). Gilbert McCleary and Agnes Funk, secretary, look on.

# Puts charter fleet on the road to greater savings

CHARTER service takes the bus fleet of C. B. McCleary Coach Lines from Evansville, Indiana, to points throughout the nation and into Canada and Mexico. Because all trips are scheduled with hotel reservations and eating arrangements made well in advance, it is important that road failures be kept at a minimum. For that reason, officials became concerned when engines required more and more upkeep because of excessive deposits and stuck rings.

The problem was put to a Standard Oil Automotive Engineer. The results obtained through the engineer's service and recommendations are reported by C. B. McCleary, owner: "Since using your Stanolube HD Motor Oil, our engine failures and maintenance costs have been substantially reduced. Engine parts are now

# Stanolube HD Motor Oil

clean and rings are free from carbon deposits. Your engineering service has been of much benefit to us."

Whether you have a particular lubrication problem or are simply looking for better fleet economy, you can benefit through this Standard Oil combination of expert engineering service and highest-quality Stanolube HD Motor Oil.

Write Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.

STANDARD OIL COMPANY (INDIANA)



# Seal it tight— Once and forever





Surface deterioration from the elements or blistering of the concrete surfaces of viaducts, bridges and masonry structures of all types can be costly, both to the contractors' reputation and to the purchaser. Be sure you play safe by coating all masonry with our specially - processed THORO System



One tiny crack or the loosening of the masonry surface in a dam or waterway construction can be hazardous, as the elements eat into unprotected concrete surfaces. The THORO System products through 35 years of trial and change have reached perfection.



For setting of anchors, bolts and the encasement of important steel members, the THORO System Waterplug has been found to protect and eliminate

Put your masonry problems up to us, our long experience working with this one subject, and hundreds of different types of masonry problems, is well worth while. Your inquiries and problems are invited. Order through your Builders Supply or Lumber Dealer.



#### SALES AND PARTS SERVICE A department devot-

ed to manufacturers' activities involving the

sale and distribution of products and parts, and service facilities. Designed to give the reader information that will enable him more readily to purchase products and parts and to service his equipment.

#### Sales Personnel

HYSTER CO., Portland, Ore.: W. J. Morgan advanced to position of assistant sales manager of eastern sales division with headquarters at Hyster plant. Peoria. Ill. He will be in charge of tractor equipment sales.

D. A. LUBRICANT CO., INC., Indianapolis, Ind.: Paul K. Iden named sales representative serving western half of Ohio, utilizing warehouse facilities of Columbus Terminal Warehouse Co., Columbus, Ohio.

LINCOLN ELECTRIC CO.: E. E. Goehringer has assumed sales and engineering responsibility as district manager of Indianapolis office at 3343 Central Ave. Omer Blodgett has been transferred from the Grand Rapids, Mich. office to Lincoln's Chicago office at 2450 S. Prairie St. To the company's Pittsburgh office, 22 Wabash St., have been assigned R. L. Hall and Robert Hirsch.

AMERICAN STEEL & WIRE CO., Cleveland, Ohio: Nine promotions of sales department officials as follows: Norman M. Sted to manager of manufacturers products sales division at Cleveland; Maxwell D. V. Millard to manager of Detroit district sales office: Edward A. Murray to manager of Chicago district sales office. In their new posts they fill vacancies created by appointments Aug. 1 of the following area managers of sales: R. F. Curtis, New York; Howard B. Maguire, Cleve-land; Clarence T. Gilchrist, Chicago. Other appointments include: Robert M. Page to manager of Worcester (Mass.) district sales, succeeding F. Kenneth Sawyer, retired; Paul Ketring to director, cold rolled strip sales at Cleveland; Henry F. Mc-Anerney to assistant manager, manufacturers products sales division at Cleveland; James R. Mohr to assistant manager, Detroit district sales; Fred L. Nonnemacher to manager of manufacturers products sales at Chicago: Fred T. Clarke to manager of manufacturers products sales at New York.

AMERICAN STEEL & WIRE CO.: L. J. Westhaver, general superintendent at Donora, Pa., steel and wire works, appointed district manager

for wire company at Duluth, Minn. Harold Cope, general superintendent of central furnaces and coke works, named Donora steel and wire representative, replacing Mr. Westhaver. Harry O. Johnson appointed central furnaces and coke works superintendent, succeeding Mr. Cope. Jacob W. Cox, superintendent of coke works in Cleveland, replaces Mr. Johnson as Donora blast furnace superintendent.

STOW MFG. CO., Binghamton, N.Y.: J. P. (Jim) Dickinson, formerly vice-president in charge of sales promoted to vice-president and general manager. J. L. (Bub) Dickinson promoted to vice-president in charge of sales. W. W. Rappman named sales manager.

NORDBERG MFG. CO., Milwaukee: H. N. Propp, formerly sales engineer at San Francisco, appointed assistant district manager, Central territory crusher and process machinery divisions; J. B. Bond is district manager. J. W. Crandall transferred from Milwaukee to San Francisco district office to serve as sales engineer under T. D. Davis, district manager.

D-A LUBRICANT CO., INC., Indianapolis: Thomas E. Carter appointed New England sales and service representative.

OWENS-ILLINOIS GLASS CO., Toledo, Ohio: William M. Hankins will join organization as general sales manager of company's Kaylo division handling building materials and insulating products.

KAISER STEEL CORP., Oakland, Calif.; J. M. Cosgrove appointed northwest district sales manager with headquarters in Hoge Building, Seattle, Wash.

BLACK & DECKER MFG. CO., Towson, Md.: Earl Roberts appointed sales engineer with Memphis branch. David Rolston has joined organization as sales representative in Philadelphia territory.

UNIVERSAL ATLAS CEMENT CO., New York City: Fred T. Wiggins elected vice-president and assistant general sales manager, New York. George S. Neel named western sales manager, Chicago. Wendell R. Doolittle, Jr. appointed sales manager, metropolitan Chicago territory. Thomas E. Bertelsen appointed assistant sales manager, Chicago territory. Joseph R. Lair appointed Indiana-Michigan district sales manager.

AIR REDUCTION SALES CO., New York City: J. B. Davenport, formerly assistant manager of Detroit district, has been appointed assistant manager of Charlotte district; J. H. Hart, (Continued on page 156)



# Crush Your Own Rock Reliance FQUIPS JOBS



#### **RELIANCE PRODUCTS**

Rock Crushers, Bucket Elevators, Revolving Screens, Storage Bins, Pulverizers, Chip Spreaders, Heating Kettles, Bin Gates, Feeders, Belt Conveyors, Griz-Ries, Alr Separators, Sand & Gravel Spreaders, Wash Boxes.

Rather than face the delay and expense of rail or highway shipments of crushed stone, gravel and sand, install your own plant and save both time and money. tors who are making money and rushing their work with RELIANCE Equipment.

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Quality products still evallable at moderate cost.

#### UNIVERSAL ROAD MACHINERY CO.

Kingston, N. Y., U. S. A.
DISTRIBUTORS IN ALL PRINCIPAL CITIES OF U. S. A.

(Continued from page 155) formerly assistant sales manager at Detroit has been promoted to assist ant manager of that district; R. A. Jamieson succeeds Mr. Hart in Detroit. A. S. Blodget, Jr. appointed assistant manager of Boston district.

JAEGER MACHINE CO., Columbus, Ohio: J. H. Yearling appointed general sales manager.

WARNER & SWASEY CO., Cleveland, Ohio: Howard Davies assigned to Syracuse district sales office.

CHAIN BELT CO., Milwaukee: Douglas Jones appointed manager of Salt Lake City district office at 1551 Redondo Ave., Salt Lake City, Utah.

ROCKWELL MFG. CO., Pittsburgh: William A. Marsteller, Chicago, and Robert P. Melius, Milwaukee, elected vice-presidents.

#### **New Plants and Offices**

ARMCO STEEL CORP., Middletown, Ohio: New \$12,000,000 steel-making plant authorized by Board of Directors will include three 225-ton open-hearth furnaces.

GENERAL ELECTRIC CO., Schenectady, N. Y.: Has completed new \$2 million glass factory at Logan, Ohio for manufacture of glass parts for incandescent and fluorescent lamps. Main building, 320x500 ft. was built by H. K. Ferguson Co. of Cleveland.

B. F. GOODRICH CO., Akron, Ohio: New \$6 million belt manufacturing plant in Akron, Ohio.

KEUFFEL & ESSER CO., Los Angeles, Calif.: New \$500,000 plant at 1320 Margo St., Los Angeles, Calif. will house modern paper coating plant and facilities for instrument repair in addition to spacious retail store.

#### **Ownership Changes**

JOHNSON ENGINEERING & MAN-UFACTURING CO., Wilkes-Barre, Pa.: Has purchased manufacturing rights of Jaques earth-boring machine formerly produced by Jaques Co., of Dennison, Tex.

#### Changes of Address

STRUCTURAL CLAY PRODUCTS INSTITUTE has moved to new and larger quarters at 1520 18th St., N. W., Washington, D. C.

C. R. JAHN CO., Chicago: Sales and general executive offices formerly at 1106 West 35th St., Chicago, will be moved to 212 Main St., Savanna, Ill. The Jahn factory has been located in Savanna for several years manufacturing a line of heavy-duty low-bed trailers.

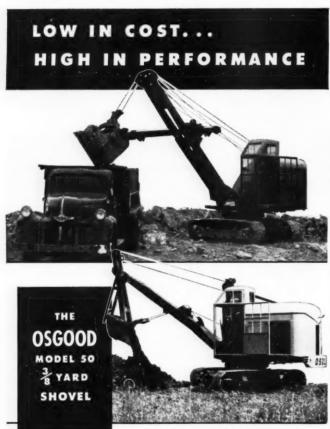
#### New Sales Outlets (Agencies, Branches)

U. S. PLYWOOD CORP., New York City: New warehouse and sales offices opened at 580 Tolland St., East Hartford, Conn. Other recently opened warehousing units in the company's new storage and merchandising program include those at New Hyde Park, N. Y., Milwaukee, Wis., St. Paul, Minn., Richmond, Va., Glendale, Calif.

#### **Distributor Appointments**

STOODY CO., Whittier, Calif.: For line of hard-facing alloys: Morris, Wheeler & Co., Box St. & Robert Ave., Philadelphia, Pa.; Silver Welding Supplies Co., 1758 Centre St., West Roxbury, Mass.

ACROW, INC., New York: Announces the appointment of seven distributors to handle its full line of adjustable steel shores, column clamps and trench jacks—Southern States Equipment Co., 425 Celeste St., New Orleans, La.; J. E. Ingram Equipment (Continued on page 158)



tion, road building, pit and quarry and industrial fields. Available as shovel, crane,

hoe, dragline, and clamshell. Equipped with OSGOOD patented wire rope crowd and automatic retract.

Write for complete details.

POWER SHOVELS . CHANES . DRAGLINES . CLAMSHELLS . BACKHOES . PILE DRIVERS

THE OSGOOD CO. DEG THE GENERAL CO.

DIESEL GASOLINE GR ELECTRIC POWERED . % TG 2% CU. YD. . CRAWLERS & MOBILCRANES

A rugged, versatile, and de-

pendable performer at low cost-that's

the OSGOOD Model 50. Its simplicity of

operation, easy maneuverability, and full

convertibility to all attachments provide

outstanding performance in the construc-







It isn't what you spend, it's what you SAVE that means money in the bank. Smith Tilters and Smith-Mobile Agitators are a winning combination that really save you money.

The cost of a Smith Tilter is saved over and over again in bigger payloads for your agitators and time saved in getting agitators out of the yard. Smith Tilters shrink a batch in a hurry and mix it smoothly, without the usual violent action of other concrete mixers. In discharging the batch, there isn't the slightest segregation.

Smith-Mobile Agitators are built to do a rugged job. They carry their rated load, day-in and day-out, and will discharge dry or low slump concrete faster than any other agitator. Smith-Mobiles are handling critical concrete to the satisfaction of engineers, contractors and operators, no matter how rigid the specifications.

Write today for new Smith Tilter and Smith-Mobile bulletins just off the press.

THE T. L. SMITH COMPANY 2851 No. 32nd Street, Milwaukee 10, Wis., U.S.A.





Cut smooth close-fitting threads—cut quickly, a and had-off pipe without jamming. They hold free-cutting sherateristics because: they are chined from alley cutting steel; are hardened off teeth with ground points and carefully carefully

utting angles.
ustable" and "Solid" type dies in sets
standard stocks and chasers for standard threaders.
Stocked by Leading Tool Departments. Write for New 8-48 Catalog just released.

#### ARMSTRONG BROS. TOOL CO. 5234 W. Armstrong Ave. Chicago 30, U.S.A. New York and San Francisco



Dependable Fairbanks-Morse generating sets start to work automatically, the instant supply from regular services is stopped. This is one reason why you'll find Fairbanks-Morse gen erators are standard equipment in many stores, office buildings, apartments, industrial plants, municipal buildings, hospitals, institutions, theaters, police and fire stations, and on farms.

There is a generating set in the Fairbanks Morse line for every need, from 350 to 35,000 watts capacities—A.C., or D.C. For full information, see your Fairbanks-Morse dealer or mail the coupon.

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Fairbanks, Morse		

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(Continued from page 156)

Co., 1146 West Laurel St., San Antonio, Tex.; Cochran Equipment Co., 200 Portwood St., Houston, Tex., Funk-houser Machinery Co., 2425 Jefferson St., Kansas City, Mo.; Townsco Equipment Co., 1704 Northwest Sixth St., Oklahoma City, Okla.: T. F. Smith Co., Inc., 5215 Manchester Ave., St. Louis, Mo.; and Lauren Burt, Inc., 3254 Walnut St., Denver,

#### **Parts and Repair Service**

YALE & TOWNE MFG. CO., Stamford, Conn.; Opened regional office at 101 Park Ave., New York City, to give better technical service and faster service on builders' hardware, under management of Harold V. Coop, builders' hardware consultant. Will give assistance in preparing specifications and budgets for locks, door closers, and builders' finishing hardware. Also opened new building at 5845 Centre Ave., Pittsburgh, Pa., to provide factory approved spare parts and repair services for Yale mechanized handling equipment. Chicago will be the next area where a new building will be constructed and equipped to offer preventive maintenance and repair services. F. Gordon Ricker is Pittsburgh regional manager.

#### Production

WEYERHAEUSER TIMBER CO., Tacoma, Wash.: Machinery additions completed in company's plywood plant at Longview, Wash. Annual capacity of expanded production facilities is 60 million sq. ft. of 36-in. plywood.

BEMIS BRO. BAG CO., St. Louis. Mo.: Has expanded its Dri-Tite canvas product production facilities with the establishment of a canvas department at company's bag factory in New Orleans, La. New Orleans canvas department will concentrate production on flat tarpaulins.

REVERE COPPER & BRASS CO., INC., New York City: Magnesium Aluminum Division of company will start rolling strip aluminum on a full-time production basis. Heretofore, Revere which has fabricated copper and copper-base alloys since 1801 has limited its aluminum mill activities to the production of tubes. forgings and extruded shapes.

KAISER STEEL CORP., Oakland, Calif.: Added facilities at Basalt Rock Co. Napa plant will enable it to produce expanded electric fusion weld steel pipe up to 36-in. dia. Plate for the pipe will be sup plied from the Kaiser steel mill at Fontana, Calif. All sizes of steel pipe will be produced in 40-ft. lengths.

#### Save time and money on construction jobs



With the construction work that lies ahead for every engineer, it is only up to you to assure yourself of superior workmanship—nsure your work of the finest structural qualities—by providing yourself with this revision of the famous Hool and Kinne Library—the books which for years have been providing structural engineers with the facts they need on every problem concerned with the design and construction of civil engineering structure

HOOL AND KINNE'S

#### Structural Engineers' Handbook Library

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6 volumes; 3763 pages; 2719 illustrations; 63 contributors

Each one of these six volumes is a complete reference in itself on some aspect of structural engineering. The library

COVERS the how and why of foundation and substructure design and construction, the general theory of structural members, the detailed design of such members and the design of their connec-tion with other members.

▶ EXPLAINS the principles of statics, reactions, moments and shears in beams and trusses, influence lines, methods of computing stresses in lateral trusses and portal bracing.

▶ GIVES details of design and construction of steel, timber and concrete structures of all types.

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Position	CM-9-
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Featuring additional Products, Specialties and Services for the Construction Industry



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#### This WHERE TO BUY Section

DAVEY COMPRESSOR CO.

KENT, OHIO

supplements other advertising in this issue with these additional announcements of products and services essential to official and economical operation in the construction industry.

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A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—holds 1250 lbs, per sq. ft. hydrostatic pressure. Cuts cost; spepilies quickly—no mixing—no cleanup—no furring—no membranes. Write for technical data—free

HAYNES PRODUCTS CO. OMAHA 3. NERR

#### **NEW ADVERTISEMENTS**

received by September 22nd appear in the October issue, subject to space limitations Address copy to the Classified Advertising Division CONSTRUCTION METHODS
A EQUIPMENT
330 West 42nd St., New York City 18, N. Y.



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REPLIES (Box No.): REPLIES (BOX NO.): Address to office nearest you NEW YORK: \$30 W. 42nd St. (18) CHICAGO: 520 N. Michigan Ave. (11) SAN FRANCISCO: 63 Post St. (4)

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ENGINEERS: OR professorships all engr. fields. Master's and Doctor's qualify unusually fine positions \$4500-87000, nine months. Instructors, bachelors. Give phone, photo, qualifications. Cline Teachers Agency, East Lansing, Mich.

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Three portable coal preparation plants built by lowa Mfg. Company, Cedar Rapids, Iowa. One new and two used less that per stires and can be easily moved and quickly set up. Capacity 200 tons per hour, complete with crushers, acreens, picking tables, and loading belts, for preparing tables, and loading tables, and loading tables, and for further information write to

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**OPPORTUNITIES** Whatever your need think "SEARCHLIGHT" FIRST

#### FOR SALE COAL STRIPPING SHOVELS & EQUIPMENT

1 Marion Electric Shovel Model 151M, 5 cu yd bucket, 45° boom, 33° stick, also standard boom 38° with 6 cu yd bucket, excellent con-dition.

2 54B Bucyrus Erie Shovels, 2 cu yd buckets, 45' boom, 32' stick both less than one year old. 1 new 7 cu yd Page dragline bucket

1 4 cu yd Esco Coal loading bucket for Model 80 Northwest Shovel 1 3 cu yd Esco Coal loading bucket for 2 cu yd Lorain Shovel

2 2½ cu yd Esco Coal loading buckets for Model 6 Northwest Shovels.

1 2 cu yd Daniels Murtaugh Coal loading bucket for 11/4 to 2 cu yd Lorain Shovels Also numerous dozers, graders, locomotives, drills, brooms etc. adaptable to coal stripping and construction work.

For further information contact B. PERINI & SONS, INC.

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FOR HARD FACING AND REPAIR





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· Amsco Nickel-Manganese filler bars and electrodes built up this dipper used in the rugged service of a northern iron ore mine. For buildup and repair work on manganese steel, Amsco Nickel-Manganese will provide a long wearing surface to resist heavy impact and abrasion. Nickel-Manganese electrodes are cold drawn rods, provided either coated for D.C. and A.C. or bare for D.C. welding. Weld deposits surface harden to 450-550 Brinell under cold working and have a toughness and ductility which approaches that of standard 13% manganese steel. Drilling sheaves, spindles, crossings, wobblers, crushers, and hammer mills are other applications where Nickel-Manganese has proved its value. Amsco cast and rolled repointer bars, plates, and hardfacing rods are also available. Write for Bulletin 10-A and W-1 for sizes and types of bars.

Ask for new booklet:
"The Metallurgical Background for
Welding Manganese Steel"



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Offices in Principal Cities

## Advertisers in this issue

All-Purpose Spreader Co.       138         Allia-Chalmera       2, 3         American Hoist & Derrick Co.       80, 137         American Manganese Steel Div.       30, 160         American Brake Shoe Co.       30, 160
American Brake Shee Co. 20 100
American Steel & Wire Co. 29
Armstrong Bros. Tool Co. 158
Atlas Powder Co
Armstrong Bros. Tool Co.         158           Atlas Powder Co.         38           Austin-Western Co.         111
Parber-Greene CoInsert bet. 144, 145
Barco Mfg. Co. 41
Bethlehem Steel Co
### Barco Mg. Co
Butler Bin Co131
Coine Start C
Caine Steel Co.         141           Carter Co., Ralph B.         116           Caterpillar Tractor Co.         22, 23           Chois Pate Co.         22, 23
Caternillar Tractor Co. 22 22
Chain Belt Co
Chevrolet Motor Div
Caterpillar Tractor Co.       22, 23         Chain Belt Co.       19         Chevrolet Motor Div.       9         General Motors Corp.       20
Chicago Pheumatic Tool Co
Chrysler Corp.
Chrysler Corp.         (Industrial Engine Division)         76           Clipper Mfg. Co.         31           Coffing Hoist Co.         133           Complete Machy, & Equip. Co., Inc.         159           Conrecte Termite Drill Co.         76           Construction Machinery Co's         87           Construction Methods and Equipment 114, 115         114, 115           Cummins Engine Co.         29
Coffing Hoist Co
Complete Machy & Fanin Co. Inc.
Concrete Termite Drill Co., Inc159
Construction Machinery Co's 97
Construction Methods and Equipment 114 115
Cummins Engine Co
Davey Compressor Co
General Motors Corp
Diamond Chain Co., Inc
Dixon Valve & Coupling Co
Dodge Div., Chrysler Corp 91
State
Electric Tamper & Fourthwest Co
Electric Vibeal Co 37
Ellicott Machine Corn. 144
Euclid Road Machinery Co., The 7
Electric Tamper & Equipment Co
Euclid Road Machinery Co., The
Euclid Road Machinery Co., The.         7           Pabricated Products Co.         132           Fairbanks, Morse & Co.         158
Fabricated         Products         Co
Fabricated         Products         Co.         132           Fairbanks,         Morse & Co.         158           Firestone Tire & Rubber Co., The.         21           Ford Motor Company         Company
Pabricated Products Co
Pabricated Products Co
Pabricated Products Co
Fabricated Products Co
Pabricated Products Co
Pabricated Products Co
Pabricated Products Co
Fabricated Products Co
Fabricated Products Co
Pabricated Products Co
Fabricated Products Co.   152
Fabricated Products Co.   132
Fabricated Products Co.   132
Fabricated Products Co.   132     Falrbanks, Morse & Co.   158     Firestone Tire & Rubber Co., The   21     Ford Motor Company (Industrial & Marine Eng. Sales Dept.)   13     Galion Iron Works Mfg. Co., The   88, 89     General Excavator Co.   156     GMC Truck & Coach Div.   139     Gilson Screen Co.   146     Goodrich Co., The B. F.   1     Goodyear Tire & Rubber Co., The   44     Gorman-Rupp Co. The   105     Griffin Wellpoint Corp.   142     Gulf Oil Corp.   68     Harnischfeger Corp.   69, 107     Haynes Products Co.   159     Heltzel Steel Form & Iron Co.   120     Homelite Corp.   34     Huber Mfg. Co., The   119     Hyster Company   93     Independent Pneumatic Tool Co.   32     Ingersoll Steel Disc. Div.     Borg Warner Corp.   132
Fabricated Products Co
Fabricated Products Co
Fabricated Products Co.   132
Fabricated Products Co
Fabricated Products Co.   132
Fabricated Products Co.   132
Fabricated Products Co.   132   Fabricanks, Morse & Co.   158   Fabricanks, Morse & Co.   158   Firestone Tire & Rubber Co., The   21   Pord Motor Company (Industrial & Marine Eng. Sales Dept.)   13   Galion Iron Works Mfg. Co., The   88, 89   General Excavator Co.   156   GMC Truck & Coach Div.   General Motors Corp.   139   Gilson Steres Co.   146   Goodrich Co., The B. F.   1   Goodyear Tire & Rubber Co., The   146   Goodrich Co., The B. F.   1   Goodyear Tire & Rubber Co., The   142   Gulf Oil Corp.   142   Gulf Oil Corp.   142   Gulf Oil Corp.   68   Harnischfeger Corp.   69   107   Haynes Products Co.   159   Heltzel Steel Form & Iron Co.   120   Homelite Corp.   34   Huber Mfg. Co., The   119   Hyster Company   93   Independent Pneumatic Tool Co.   32   Ingersoll Steel Disc. Div., Borg Warner Corp.   132   Inland Steel Co.   2nd Cover International Harvester Co., Inc. (Industrial Power Division)   98, 99   (Motor Truck Division)   98, 99   (Motor Truck Division)   33   Jowa Mfg. Co.   102, 103   Jaeger Machine Co., The   81   Jiffy Products Co.   162   Koshving Company   24   25   Koshving Co
Fabricated Products Co.   132
Fabricated Products Co.   132   Fabricanks, Morse & Co.   158   Fabricanks, Morse & Co.   158   Firestone Tire & Rubber Co., The   21   Pord Motor Company (Industrial & Marine Eng. Sales Dept.)   13   Galion Iron Works Mfg. Co., The   88, 89   General Excavator Co.   156   GMC Truck & Coach Div.   General Motors Corp.   139   Gilson Screen Co.   146   Goodrich Co., The B. F.   1   Goodyear Tire & Rubber Co., The   146   Goodrich Co., The B. F.   1   15   Goodyear Tire & Rubber Co., The   142   Gulf Oil Corp.   142   Gulf Oil Corp.   142   Gulf Oil Corp.   142   Gulf Oil Corp.   68   Harnischfeger Corp.   69   107   Haynes Products Co.   159   Heltzel Steel Form & Iron Co.   110   Hermitage Portland Cement Co.   120   Homeilte Corp.   34   Huber Mfg. Co. The   119   Hyster Company   93   Independent Pneumatic Tool Co.   32   Ingersoll Steel Disc. Div.   Borg Warner Corp.   132   Inland Steel Co.   2nd Cover International Harvester Co., Inc. (Industrial Power Division)   98, 99   (Motor Truck Division)   33   Jowa Mfg. Co.   102, 103   Jaeger Machine Co., The   81   Jiffy Products Co.   105   Koehring Company   24, 25   Kohler Co.   104   1
Fabricated Products Co.   132   Fabricanks, Morse & Co.   158   Fabricanks, Morse & Co.   158   Firestone Tire & Rubber Co., The   21   Pord Motor Company (Industrial & Marine Eng. Sales Dept.)   13   Galion Iron Works Mfg. Co., The   88, 89   General Excavator Co.   156   GMC Truck & Coach Div.   General Motors Corp.   139   Gilson Screen Co.   146   Goodrich Co., The B. F.   1   Goodyear Tire & Rubber Co., The   146   Goodrich Co., The B. F.   1   15   Goodyear Tire & Rubber Co., The   142   Gulf Oil Corp.   142   Gulf Oil Corp.   142   Gulf Oil Corp.   142   Gulf Oil Corp.   68   Harnischfeger Corp.   69   107   Haynes Products Co.   159   Heltzel Steel Form & Iron Co.   110   Hermitage Portland Cement Co.   120   Homeilte Corp.   34   Huber Mfg. Co. The   119   Hyster Company   93   Independent Pneumatic Tool Co.   32   Ingersoll Steel Disc. Div.   Borg Warner Corp.   132   Inland Steel Co.   2nd Cover International Harvester Co., Inc. (Industrial Power Division)   98, 99   (Motor Truck Division)   33   Jowa Mfg. Co.   102, 103   Jaeger Machine Co., The   81   Jiffy Products Co.   105   Koehring Company   24, 25   Kohler Co.   104   1
Fabricated Products Co.   132
Fabricated Products Co.   132
Fabricated Products Co.

Lincoln Electric Co., The 83
Link-Belt Speeder Corp
Link-Belt Speeder Corp
Lubriplate Div., Fiske Bros. Refining Co147
M - 1 - 0 - 0
Macwhyte Co.         84           Malsbury Mfg. Co.         134           Master Builders Co., The.         3rd Cover           Mast'r Vibrator Co.         141           Maxon Construction Co., Inc.         (Dumpereta Division)           Dumpereta Division         150
Maisbury Mrg. Co
Master Bunders Co., TRC
Maxon Construction Co. Inc.
Dumperete Division   150
McCaffrey-Ruddock Tagline Corp
McGraw-Hill Book Co., Inc
McKiernan-Terry Corp112
Merritt-Chapman & Scott Corp16, 17
Michigan Power Shovel Co
Merritt-Chapman & Scott Corp. 16, 17 Michigan Power Shovel Co. 75 Mixermobile Manufacturers 77 Montgomery & Co., Inc. 159
Montgomery & Co., Inc
Moretrench Corp 39
Northwest Engineering Co 11
0 - 1 C- Th-
Osgood Co., The
Owen Bucket Co., The
Page Engineering Co128
Paris Mfg. Co. 106
Perfection Steel Body Co., The
Paris Mfg. Co.         106           Perfection Steel Body Co., The.         72           Powder-Power Tool Corp.         126
Quaker Rubber Corp
Quaker Rubber Corp
Rice Pump & Machine Co.       142         Richmond Screw Anchor Co., Inc.       117         Riddell Corp., W. A.       130
Richmond Screw Anchor Co., Inc
Riddell Corp., W. A
Rodgers     Hydraulic, Inc.     136       Rogers     Brothers     Corp.     86       Rotary     Concrete     Drill     Co.     108
Potest Concrete Drill Co. 188
Salem Tool Co., The
Schield Bantam Co., Inc., The
Sinclair Refining Co
Smith Co., The T. L.   157   Sonoco Products Co.   127   Stendard Dry Wall Products Co.   154
Sonoco Products Co
Standard Dry Wall Products Co
Standard Oil Co (California)         92           Standard Oil Co. (Indiana)         153           Stang Corp., John W.         122
Standard Oil Co. (Indiana)
Stang Corp., Jenn W
Stemco Corp
Sterling Wheelbarrow Co
Section Contraction to
Templeton, Kenly & Co
Texas Company
Texas Company
Timken Roller Bearing Co
Tulsa Winch Div., Vickers, Inc124
T
U. S. Steel Co., Subsidiaries
Universal Engineering Corn Div.
U. S. Steel Co., Subsidiaries       28, 43         Universal Atlas Cement Co.       43         Universal Engineering Corp., Div.       148         Pettibone Mulliken Corp.       148         Universal Mfg. Corp.       132         Universal Road Machinery Co.       155
Universal Mfg. Corp
Universal Road Machinery Co
Viber Company
Waterloo Foundry Co
Wellman Co., The S. K
Wellman Co., The S. K.         122           Wellman Engineering Co., The         108
White Co., David         142           White Mfg. Co.         86           Whitney Chain & Mfg. Co.         10
White Mfg. Co 86
Whitney Chain & Mfg. Co 10
Whitney Chain & Mfg. Co
Whitney Chain & Mfg. Co
Whitney Chain & Mfg. Co

#### SEARCHLIGHT SECTION

(Classified Advertising)

Employment
Position Vacant 159
Selling Opportunities Offered 159

Equipment
(Used or Surplus New)
For Sale 159



YACHT BASIN APARTMENTS, CLEARWATER, FLA. Archt. — Marsh & Saxelbye, Jacksonville, Fla. Gen. Contr. — John C. Emerson & Sons, Brooksville, Fla. Pozzolith Roady-Mixed Concrete furnished by General Ready-Mixed Concrete, Inc., Clearwater, Fla.

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Oregon and Ohio Agree: BLUE BRUTE AIR TOOLS ARE TOP COST-CUTTERS!

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A Blue Brute construction team in Toledo, Ohio, removing street paving. Owner John V. Rush of Toledo says: "Our WB-85 Paving Breakers and 60' Portable Compressors make ideal combinations. In four months' continuous operation, removing and replacing 6" and 8" concrete base, we have had absolutely no maintenance trouble on this equipment. We are very much pleased with it."

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